Occupational HAZARDS

THERE'S PROFIT IN PREVENTION

FEBRUARY
1948

•

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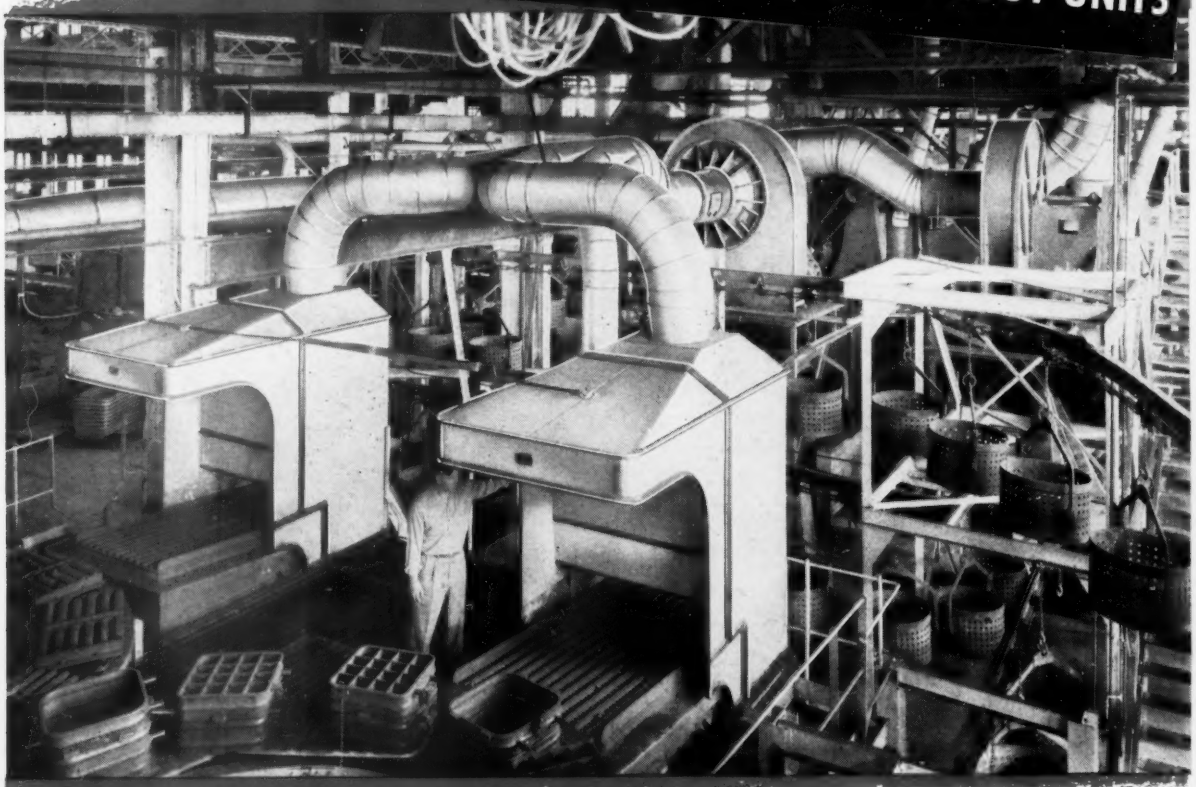
IN THIS ISSUE:

CONTROLLING DUST HAZARDS
. . . MAJOR FIRE CAUSES . . .
A SAFETY-PROGRAM IN OPERATION

modern foundry practice...

... DUST CONTROL FOR PRODUCTION LINE SHAKEOUT UNITS



...engineered & installed by KIRK AND BLUM

Typifying modern foundry practice are the methods and equipment used in the large midwestern foundry illustrated above. And prominent among this modern equipment are five separate KIRK & BLUM Dust Control Systems. The unit illustrated is installed on the production line shakeouts. Note how the equipment has been designed for non-interference with foundry production.

Castings move along inclined shakeout grate, opening hinged gate automatically by contact, and castings drop into conveyor baskets.

Other examples of KIRK & BLUM air-engineering are illustrated and described in the latest edition of booklet M, "Dust Collecting Systems in Metal Industries." Write for your copy today.

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48-B

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Typical records indicate that even the slightest of eye-injuries costs (in lost time, idle machine time and medical attention) approximately $15.00. The Society for the Prevention of Blindness estimates that *ninety-eight per cent* of these injuries can be prevented by the use of safety goggles (averaging in cost $1.50 a pair). What piece of plant equipment costs so little and returns its cost so many times?

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A-O Safety Goggles Safeguard the Eyes of Industry

American Optical COMPANY *Safety Division*

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Jackson's *New* Headrest Goggles

• Light and Easy to Wear • Simple and Easy to Adjust • Practical and Easy to Raise and Lower

LENSES, standard 50 mm. size, are available in shades from 3 through 8. They are held in individual eye cups. Cover glasses protect the filter lenses from pitting.

EYE CUPS are of moulded plastic, joined together flexibly, so they may be easily fitted against the face of the wearer. The outside of each eye cup has ventilating screen, and baffle plate, which prevent fogging, yet keep flying particles and stray light rays from reaching the wearer's eyes.

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HEADREST distributes the weight over the entire head. It is of light, easy to clean plastic and easily adjusted to any head size. Sweatband adds to the wearer's comfort.

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For WELDING, available in two types:

Type W-50, as shown above, with plastic headrest and telescopic arms.

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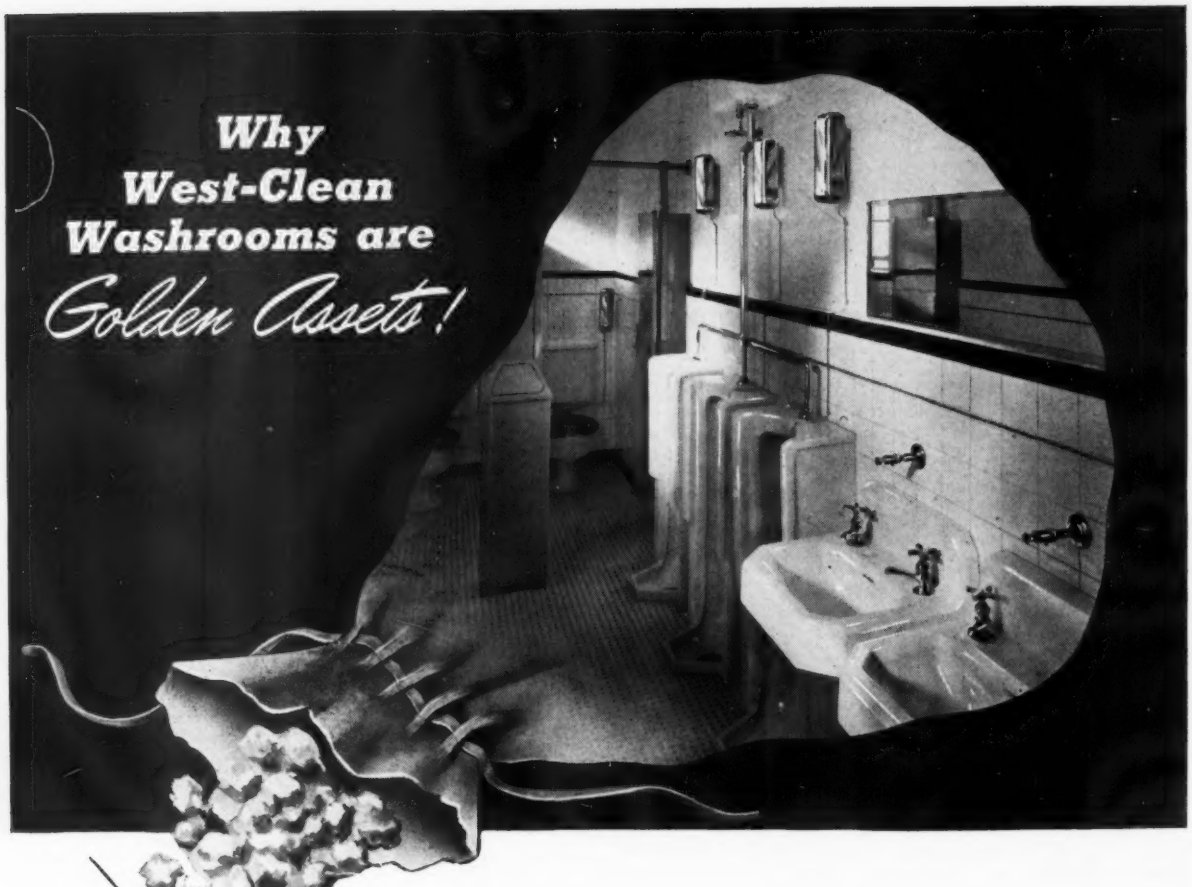

One immaculately clean washroom may frequently go a longer way to furthering employe relations than a half dozen "trouble-shooting" conferences. Employe health, loyalty, and heightened operating efficiency always go hand in hand with clean, comfortable working conditions. Before it can pass employe inspection, however, a washroom must be *fully clean — not just half clean!*

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Close to 500 trained West Representatives from coast to coast are ready to explain the merits of this superior service in full detail. For a quick solution to your washroom problem, contact us at once.

A handsomely illustrated brochure is now available upon request. Just fill in the coupon below to discover how your washroom maintenance costs can be greatly reduced — and how you can obtain the Free services of trained West service men.

PLEASE CLIP TO YOUR BUSINESS LETTERHEAD

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I would like a copy of "An Ideal Washroom Maintenance Service"

NAME_____

POSITION_____

The ...onths ahead will require careful consideration of every means to widen the gap between factory cost and selling price. The safety apparel used by your workers should *invite* them to work faster. Safety is not enough. Comfort in wearing, freedom in use, lessened fatigue . . . these are the qualities to insist on, these are the qualities the Industrial Gloves Company has sought increasingly to manufacture into its Steel-Grip Protective Work Handlers. You may find exactly what you want in the extremely broad Steel-Grip line. Or Steel-Grip designers will work with you to produce it. Steel-Grip Protective Work Handlers are the product of 36 years' experience and offer you the utmost value at the lowest price. Write for a catalog today.

Standard Steel-Grip Finger Guard
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This sturdy reversible asbestos mitt is designed for roughest service. Entire wearing surface is "quilted" to patch of wool felt on inside of mitten, adding materially to wearing qualities. Wool lined

No. 644
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Bundler's Handguard
No. 13455—This new fingerless handguard, designed especially for bundlers in the paper industry, reduces handling hazards and permits faster, better, safer work. Made of toughest chrome leather with extra leather patch over palm. In pairs, or right or left hand only.

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Do you have any questions, theories or ideas concerning industrial health or safety? If you want to give them a good airing—send 'em along. We'll publish all space permits.

"American Standards Association"

OCCUPATIONAL HAZARDS:

In your December issue, on page 15, in the article, "Checking Carbon Tetrachloride Hazards," you have stated that the American Standards Association has set 100 ppm as the limit.

We appreciate that from a very strict reading of your magazine, you are probably entirely correct, but some individuals may interpret your wording to infer that there is an American Standard on the concentration. We are therefore calling this matter to your attention and enclosing our latest statement we have prepared on the subject. Up to the present time there is no American Standard maximum allowable concentration for carbon tearachloride. —Henry G. Lamb, Secretary, Z37 Committee, American Standards Association.

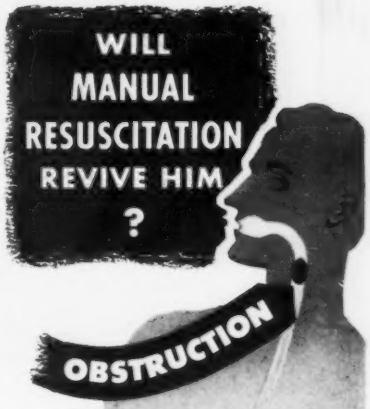
Thanks to reader Lamb for calling this matter to our attention. We have carefully gone over the statement which the Association has released. Some members of the Sectional Committee on Maximum Allowable Concentrations of Toxic Dusts and Gases, Z37, believed that the maximum allowable concentration of Carbon Tetrachloride should be set at 100 parts per million, while others thought 50 ppm was the better figure. The committee agreed to hold the proposed standard in abeyance until further data or research can be made available.—Ed.

"Electrical Hazards"

OCCUPATIONAL HAZARDS:

In the December, 1947 issue of your magazine there is an article entitled "Electrical Hazards of the Plant Electrician" which we believe should be of interest to all our electrical supervisors. How about per-

(Continued to Page 39)



Manual resuscitation, adequate for some uncomplicated respiratory emergencies, is frequently *not* adequate when suffocation, drowning, or crushing is accompanied by throat obstructions, burns, or internal injuries.

The saving of just one worker's life, in one of these cases, is worth many times the money invested in adequate equipment. When an E & J machine is immediately available in your plant, your workers are protected—*as completely as humanly possible*—against death or complications arising from respiratory emergencies.

Without an E & J resuscitator you risk losing a life that might otherwise be saved.

See for yourself the simplified, easy-to-learn operation of an E & J resuscitator-aspirator-inhalator . . . examine the skilled workmanship, the many safeguards provided your employees. For a demonstration, without obligation, clip and mail the coupon right now, or phone your nearest E & J office.

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. . . RESUSCITATOR-ASPIRATOR-INHALATOR

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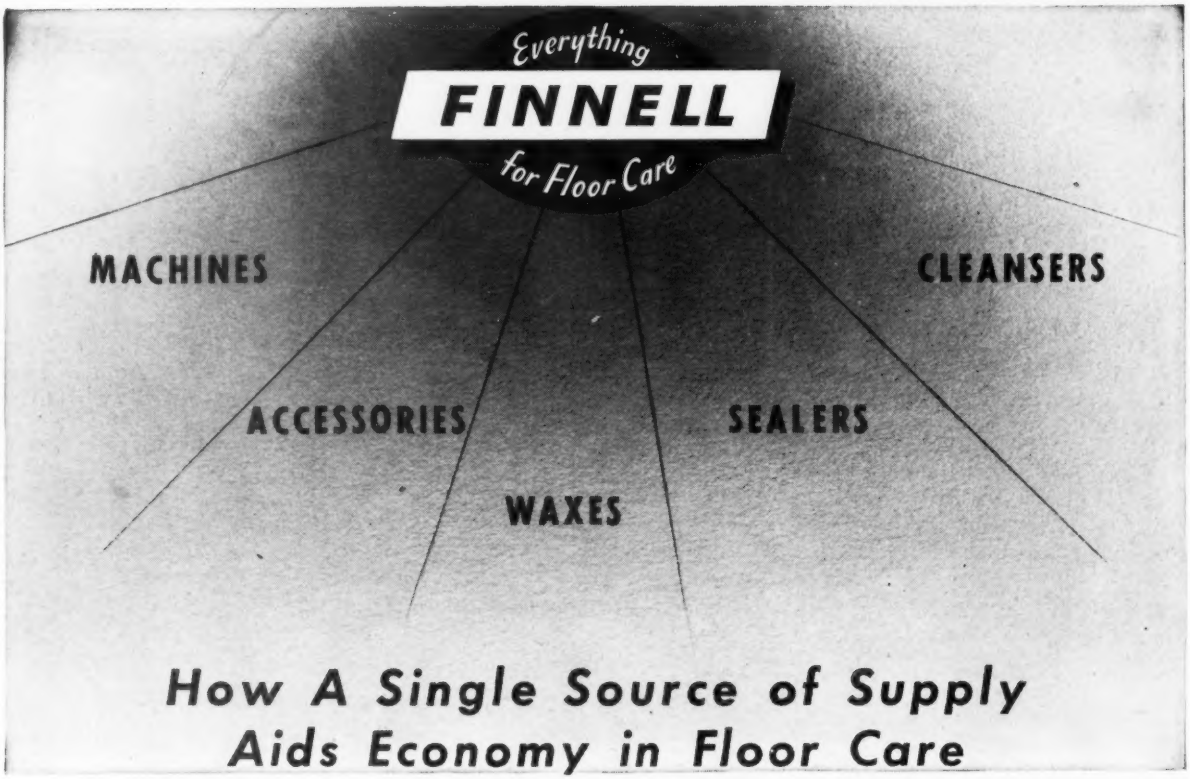

How A Single Source of Supply Aids Economy in Floor Care

It's convenient to buy floor-maintenance equipment and related products from one source, but a single source of supply such as *Finnell* offers many more advantages. Serving all industries, *Finnell* makes equipment for every type of floor care . . . for all floors . . . all areas. From the *Finnell* line you can choose the equipment that provides the maximum coverage for your particular floors—whether maintenance calls for wet scrubbing, dry scrubbing, or dry cleaning . . . or for waxing or polishing.

Finnell also makes a full line of Cleansers specially developed for the greater speed of mechanical-scrubbing. The cleaning action of *Finnell* Cleansers *keeps pace* with the speed of the machine. This cuts operating time, which in turn reduces labor costs and saves on brushes.

In waxing, too, co-ordinated economy can be effected, by doing the job mechanically with a portable *Finnell* and *Finnell-Kote*, the solid wax that's applied hot. This process produces a finish unique in wearing and protective qualities, and hence is more economical on a year-to-year cost basis.

In addition to a full line of *Machines, Cleansers,* and *Waxes, Finnell* makes several types of *Sealers* . . . also *Mop Trucks, Steel-Wool Pads,* and other accessories. The nearby *Finnell Floor Specialist and Engineer* is readily available for free floor survey, demonstration, or consultation . . . and for training your maintenance operators in the proper use of *Finnell* equipment. Phone or write nearest *Finnell* branch or Finnell System, Inc., 3502 East Street, Elkhart, Indiana. Canadian Office: Ottawa, Ontario.

* * * *

The *Finnell* illustrated at left is a *Self-Propelled Combination Scrubber-Vacuum* for use on large-area floors. A complete cleaning unit *all in one*, it applies the cleanser, scrubs, rinses if required, and picks up. Has a cleaning capacity up to 8,750 sq. ft. per hour!

FINNELL SYSTEM, INC.

Pioneers and Specialists in

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Occupational HAZARDS

VOLUME 10 • No. 4

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THE REFRIGERATION INDUSTRY

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"THERE'S PROFIT IN PREVENTION"

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BE CAREFUL!

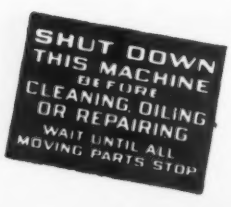
Yes, we marvel at the amazing work of modern machines ... we say "they can almost think."

But they can't think. That's why Machine accidents occur ... unless the men who operate them do the thinking.

STONEHOUSE SIGNS

FOR ACCIDENT PREVENTION

help to prevent machine accidents by urging men to be careful on or around machinery ... to THINK!



There are many Machine Hazard signs in Stonehouse Catalog No. 8 It's Free on request.

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Stonehouse SIGNS, INC.
MANUFACTURERS

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ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS

Now HY-TEST offers

A SAFETY SHOE with DRESS SHOE SMARTNESS

N THE JOB

With HY-TEST'S EXCLUSIVE ANCHOR FLANGE STEEL BOX TOE

OR OFF

H-708—antique finished brown Kip bal oxford with medallion tip. Oak leather sole, half rubber heel. Anchor Flange steel box toe.

Chances are that a considerable percentage of the men in your plant shy away from safety shoes because of their work shoe appearance. HY-TEST'S smart, dressy brown oxford, shown here, enables you to offer them safety shoe protection in a shoe they'll be proud to wear anywhere.

Write for HY-TEST'S New Catalog
Over 50 Styles—Sizes 5-14, Widths AA-EEE

...Insure Workers Feet In Sure Protection

with HY-TEST *Safety Shoes*

THE WORLD'S LARGEST SELLING SAFETY SHOE

HY-TEST SAFETY SHOES

ST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MO.
EASTERN OFFICE • MANCHESTER, N.H.

LATHE ON THE LOOSE

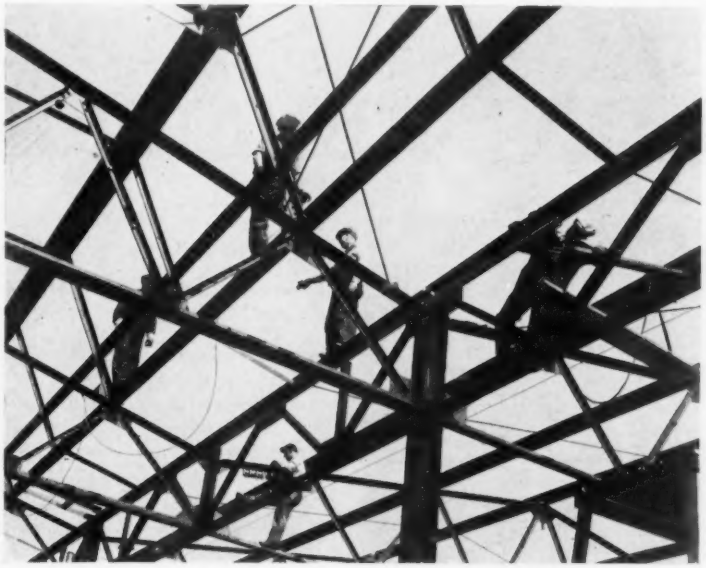
Operator of a monster ordnance lathe braced a timber between tool turret and steady rest to turn carriage head. Timber slipped, and heavy carriage continued to move, crushing operator's left foot against steady rest. The tough sole of the Lehigh Safety shoe was cut and curled, and even the *Lockrim armor plate steel toe box was mashed out of shape. Injury? Yes. Bad? Well—laceration of the great toe and contusion of the nail! Week after week grateful workers and wise safety engineers write to describe similar incidents where Lehighs have saved toes, time, and money...because they're "engineered to fit into industry." That's why so many top safety men look to Lehigh for authoritative advice when and wherever foot and underfoot problems occur. Do you?

FREE! Pay envelope enclosure with ten similar case histories will convince any skeptic that safety shoes pay. No advertising. Send for sample or enough to cover your payroll.

*T. M. REG.

LEHIGH
Division of the ENDICOTT JOHNSON CORPORATION
SAFETY SHOE COMPANY
ALLENTOWN, PA.
WESTERN OFFICE: 12th AND SPRUCE, ST. LOUIS 2, MO.

SAFETY DURING STEEL CONSTRUCTION



Though the raising of steel structures is dangerous work, experienced riggers know that the majority of accidents on the job are needless and preventable. The safety recommendations in this article are taken from the many safety tips listed by the National Conservation Bureau, Accident Prevention Division of the Association of Casualty and Surety Companies in their valuable booklet, "Your Guide to Safety in Steel Erection Work," recently published. If observed, these recommendations can do much to eliminate the unnecessary accidents occurring on such jobs.

IN the interest of general safety, it is important that all men engaged in steel erection work wear protective wearing apparel and equipment such as helmets or hard hats, gloves of suitable type and safety goggles when grinding, chipping, scraping, cutting and heating rivets. Shoes should be of the safety toe type, with soles of non-slip design.

Though steel workers, in general, are high grade specialists who know their jobs, they sometimes are inclined to become thoughtless of hazards and to needlessly expose themselves to obvious risks. Riggers, for instance, often stand, walk or work beneath suspended loads, or ride on steel being hoisted, or ride on the ball, hooks, cables, slings or slide down ropes or cables. These practices are not in accord with safety and should not be permitted. Workmen should stand clear of derricks which are sorting or shifting steel beams, and generally observe the common rules of safe conduct.

Special care should be taken with ladders. They should be of substantial construction and side rails should extend at least forty-two inches above the floor or platform which they serve—securely fastened both at top and bottom so that it cannot move in any direction. All small objects that are apt to fall through small openings or planks should be cleaned and free from temporary floors and scaffold platforms.

An important part of safety on the steel erection job is to consider the safety of the public or workers in other trades who are operating close to steel erectors. These workers should be cautioned and instructed on any exposure condition existing or that may arise which may result in accident. They should be instructed to wear hard hats when required to work close by and they should be instructed not to operate directly underneath scaffolds that are being used.

The public should be kept clear of danger areas, especially during receiving or unloading steel on the job site. Adequate protection, such as watchmen, barricades, signs and flags should be provided to protect the public. Care should be taken at all times to avoid fire during construction. Clothing should not be left in areas below where rivet heating or riveting is being performed. (See "Prevent Fire During Construction," which appeared in the November, 1947 OCCUPATIONAL HAZARDS.)

Derricks, Cranes and Travelers

Derricks should be constructed and operated so that no part shall be stressed beyond the working strength or capacity for which it is designed. All blocks, shackles, sheaves and the various devices on the mast and boom should be thoroughly inspected before erection. The foot-blocks of the derrick should be securely supported and firmly anchored against movement in any direction, and substantial shores should be placed against the foot-blocks to take the pull of the hoisting engine.

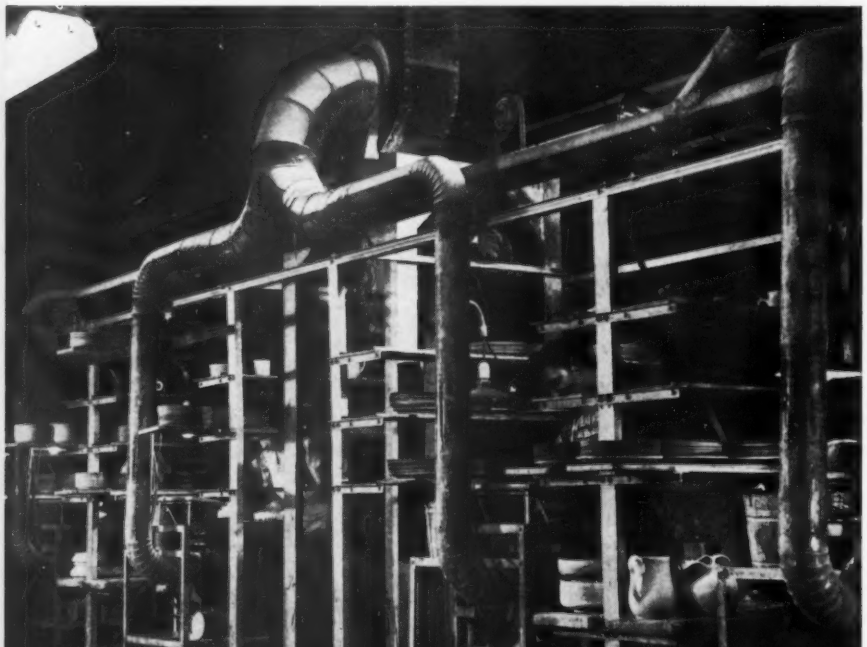
The top of the mast on guy derricks more than 25 feet in height should be steadied by not less than 6 good cables equally spaced. Cables showing excessive rust or breakage should be discarded. The ends of the cables should be placed in thimbles and secured to the guy plates by means of shackles. The cable end should be clamped by not less than 3 "U" clamps or the equivalent, the bolts of the clamps all facing in the same direction.

It is important to consider the

(Continued on Page 29)

Dust is a common source of respiratory infection in many industries. Its control is important. The American Dinnerware industry is doing much in . ..

CONTROLLING ABNORMAL DU



By
M. W. THOMPSON

Chairman, Plant Hygiene Committee, United States Potters Association

THE American dinnerware industry has entered upon a new era of modernization and mechanization. It is expanding as never before. It is in the midst of the broadest program of increased production, research and technical developments in its entire history.

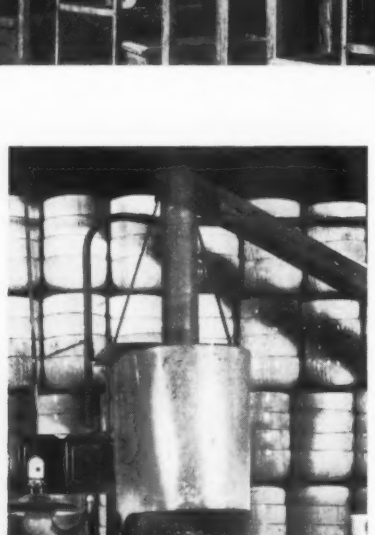
And while it has been concentrating on the marriage of the ancient handcraft of pottery making with mass production methods, it has by no means relaxed the intensity of its efforts to solve an old, old problem—clay dust.

Constantly at the forefront of the industry's broadened activities are developments aimed at eliminating any and all health hazards in United States potteries.

Dust control and protection of the health of pottery workers in every way are objectives which have been given top priority by the member firms of the United States Potters Association, which represents the manufacturers of 80 per cent of the nation's dinner, hotel and oven ware.

How successfully this determined program already has achieved results is reflected in the present very low percentage of lung disease fatalities among pottery workers. It can be directly attributed to the effectiveness of dust control measures which have been applied throughout the industry, and the excellent cooperation between plant operators and employees.

Especially gratifying gains in plant hygiene and dust control were accomplished during the past year. The industry-wide movement to eliminate health hazards in the potteries and reduce dust problems to a minimum will receive continued emphasis in 1948. We are confident the results from such concentrated efforts will fulfill our expectations to the fullest extent.



Moisture added to flint car loadings, ventilating systems, and the installation of devises designed to eliminate dust are among measures taken in the nation's potteries to eliminate health hazards.

An important phase in the manufacture of dishes takes place on this bisque ware brushing machine. Exhaust system shown in the picture protects workers at a point which would ordinarily be hazardous.

AL DUST EXPOSURES

The surveys, research and intensive field work conducted in the potteries last year (1947) by the Industrial Hygiene Foundation of America, at the request of the Potters Association, were particularly important. This assistance was instrumental in discovering what further control measures were needed, how the newest scientific techniques could be best applied, and it was also invaluable in obtaining uniformity in plant hygiene methods in the various potteries.

Results of the work done by the engineer and medical staffs of the Industrial Hygiene Foundation were reviewed in a clinic conducted by the Plant Hygiene Committee of the U.S.P.A. last October in Pittsburgh, Pa., at the Mellon Institute, headquarters of the Foundation.

Recommendations by the Foundation's engineers and medical experts, based upon their findings and the conclusions reached as the result of their surveys and research, are being carried out by the American dinnerware manufacturers in all their plants. The ultimate goal of these efforts will be the elimination of all types of health hazards in the potteries.

Foundation's Cooperation

The Pittsburgh clinic was unquestionably one of the most important events of the past year in advancing the U.S.P.A.'s plant hygiene program. It served to focus the efforts of everyone concerned on the specific problems which had been encountered, and what solutions were needed. It gave the representatives of the industry the opportunity to discuss and review together every phase of dust control, from the handling of raw materials and sliphouse charging to keeping floors clean and maintaining good housekeeping. The results obtained at individual plants were reported and received group discussion.

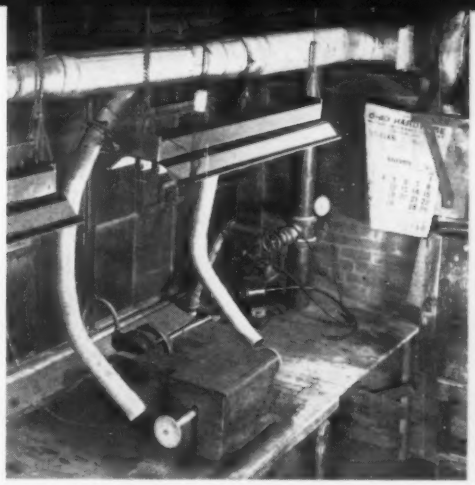
Members of the medical staff of the Industrial Hygiene Foundation discussed latest discoveries and methods of health control and elimination of hazards in the potteries.

The Foundation's expert engineers, in their reports and recommendations, especially stressed the necessity for adequate moisture control in eliminating flint dust problems. This and adequate ventilation were key measures recommended.

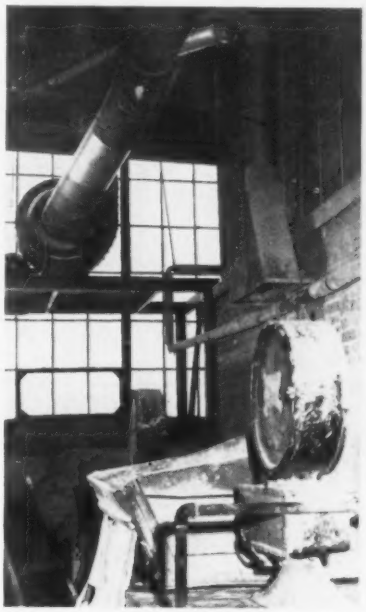
The surveys by these experts disclosed what excellent results already had been obtained in dust control since introduction of the moisture methods. They cited, for an example, how controlled dampening of the raw material, in both cars and bins, showed a present-day dust count average of only 6.5 millions for 55 carloads, as compared with a 20-million count for a typical car in 1944, even though the 1944 carload had originally been moisture-treated at the flint mill. Constant and progressive cooperation between the potteries and the mills has resulted in increasingly satisfactory moisture methods, and still further improvements in techniques are anticipated during the year ahead.

Particularly emphasized at the Pittsburgh clinic were the continued need for sufficient moisture content at the point of origin in car loading, additional moisture as required when unloading, and adequate ventilating systems in sliphouse and batch-handling operations.

The U. S. Potters Association will continue in 1948 to concentrate its most diligent efforts on the elimination of dust and other hazards and on making the nation's potteries model institutions in protecting the health of the industry's workers. Conferences and clinics to continually further this program are scheduled in future months.



A grinding bench, equipped with the latest type of dust control mechanism in one of the nation's leading potteries.



A dust exhaust system is shown here installed in the "blunger mill" of a dinnerware factory.

Good housekeeping is one of the many phases of dust control being stressed by the United States Potters Association. This industrial vacuum floor scrubber does much to protect the health of the pottery worker. *(All photos: J. G. Davies)*

Solvent Handling CAN BE HAZARDOUS!

1 In small plants where there is no safety department to supervise safe handling and use.

2 In large plants when the hazards of "occasional" solvent jobs are ignored or not realized.

Most occupational accidents involving solvents occur in the small plant or shop where there is no safety organizaiton to supervise regular or occasional solvent operations. Solvent accidents in larger plants usually result because the safety department has neglected to set up precautions for the so-called "one time" job which can prove hazardous to employee health and safety.

SOLVENTS are liquids commonly used for cleaning, thinning, degreasing, spot removing, etc. Although they are marketed under a variety of trade names, the most commonly used solvents consist of benzol, benzine, acetone, carbon tetrachloride, trichlorethylene or perchlorethylene. Careless handling of even small amounts of these materials may lead to fire, illness, or both.

Since it is usually the proprietor, manager or foreman in the small plant who plays the role of "Safety Director", it is up to him to read carefully the labels on all drums of chemicals received in the plant, and to be certain that the precautions recommended by the manufacturer are observed. If drums of solvents bear trade names which do not reveal their composition, this information can generally be obtained from the manufacturer or distributor.

Solvents are volatile liquids—they give off vapors readily. With the exception of the chlorinated solvents (such as carbon tetrachloride) the vapors given off are flammable. Moreover, when air containing a certain amount of solvent vapor is inhaled, illness is likely to result. If the concentration of solvent vapor in the air breathed is large enough, it is likely to cause unconsciousness and even death if the individual is allowed to remain in the atmosphere long enough. Long or repeated contact of the skin with solvents can cause irritation and dermatitis.

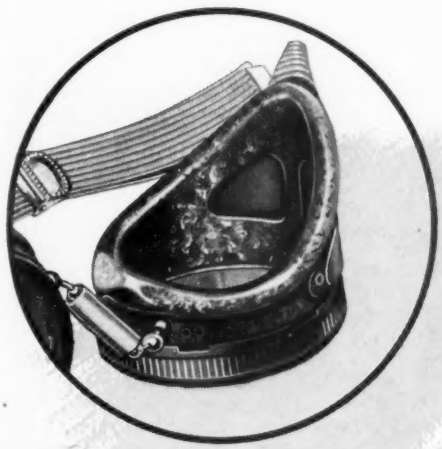
Of course, solvents can be, and are, used with complete safety, even in large volume, provided the proper handling methods are employed. This is usually the case in large plants, where continuous solvent processes are carried out with no difficulty. It is not so often recognized, however, that small uses of solvents, such as wiping of lenses, or occasional uses, such as cleaning motor parts, also constitute solvent operations which require attention to safety.

For example, there was a recent case of occupational illness which occurred when a laborer was assigned to remove grease from the gears of a mill prior to its dismantling. Since this was a "one time" job, the degreasing solvent was used in open buckets, with little attention to safety. Though only small amounts of solvents are used, sickness can result if safety precautions are ignored or forgotten.

The small solvent user can protect his plant and his workers by making sure that every procedure employing solvents, whether for a brief or extended period of time, is arranged so that workers do not inhale solvent vapors. In some instances, this may require the installation of special process equipment; in others proper ventilation will provide the necessary safeguard. Operations should be set up so that skin contact with the solvent is avoided. Local industrial hygiene agencies can help those who are in doubt as to the safety of their solvent operations. — Safety Research Institute.

You can *See* Quality IN CESCO SAFETY EQUIPMENT

The gently-resting **comfort · bridge** on Cesco spectacle goggles is an exclusive quality feature.



The contour-molded, snug-fitting eye cups on Cesco goggles—a quality and comfort feature.

Cesco's acid hood offers, among other outstanding features, acitex material which resists the 5 most injurious acids.

The exclusive air-distribution tube in the Cesco *Air-Flow* welding helmet is only one of its quality features.

• Look at any Cesco product. In each you'll see features and workmanship that represent Quality.

Like the **comfort · bridge** on Cesco goggles, the texture of the Acitex hood, the molded goggle cups, and the engineering details of the *Air-Flow* helmet—each Cesco product has distinguishing quality features.

Cesco Quality starts with the designing of a product. Quality is added during experimental and job-testing periods. And, quality is then manufactured into Cesco equipment through exacting attention to detail and expert workmanship.

It is important to consider Cesco Quality when you buy safety equipment.

CHICAGO EYE SHIELD COMPANY
2308 **Warren Boulevard • Chicago 12, Illinois**

CESCO

CESCO FOR SAFETY

INDUSTRIAL
Accidents in the News . . .

These accidents are taken from the pages of the Nations Newspapers. They've all happened, they didn't have to!

Martinsburg, W. Va., Journal

Randall H. Ridgeway, 54, of Stephens City, Va., was pronounced dead upon arrival at the Winchester Memorial Hospital from injuries received in a 12-foot fall from a platform to a concrete floor at the National Fruit Products Co. He tumbled from the platform which ran along the con-conveyor on which he was working. Landing on his head, he suffered a broken neck and fractured skull.

Prevention:

When it is necessary for men to work on narrow "cat-walks" or runways, those elevated platforms should be equipped with a substantial guard rail not less than 40 inches in height. It should either be of solid construction or screened with stout wire making it impossible for workers or objects to fall through to the floor below.

◆

Lewistown, Pa., Sentinel

Clinton Wolfe, 33, a laborer in the the shipping department of the General Refractories Company at Mount Union, was admitted to the J. C. Blair Memorial Hospital because of an injury sustained while at work. In helping to lay a runway, Wolfe lifted a heavy plank and twisted his back.

Prevention:

If load or material is of such a character that it lends itself to hand lifting, the proper position should be maintained in the process. Back should be kept straight and the worker should bend his knees and use his leg muscles for lifting. He should wait for help before lifting an object that is obviously too heavy for him to lift by himself.

◆

Houston, Texas, Press

Samuel Vein Klein, Jr., 32, and Earnest Strother, 21, fell to their deaths when the 100-foot tall steel boom upon which they were working broke loose from its guy wires and toppled to the ground. Mr. Klein and Mr. Strother were almost to the top of the gin pole when a guy wire came loose from its connection at the top. An eyewitness, Clifford Blevins, said, "They tried to climb down as the pole started falling. They didn't get more than four or five steps."

Prevention:

The top of any such pole more than 25 feet in height should be steadied by not less than six cables equally spaced. Cables showing excessive wear or breakage of ten percent of the total number of strands should be discarded. Ends of cables should be placed in thimbles and secured to the guy plates by means of shackles. The cable end should be clamped by not less than three "U" clamps or the equivalent.

◆

Hoboken, N. J., Jersey Observer

George Chiosco, 18, suffered serious injuries in an accident with an electric lift truck at the American Can Company, 12th and Hudson streets. Chiosco was sitting on the lift blades of the truck as it was being operated in the plant's first-floor shipping room. His hand was smashed against the top of a steel doorway. Police said the lift truck operator did not see Chiosco's hand and did not think the lift was so close to the top of the doorway.

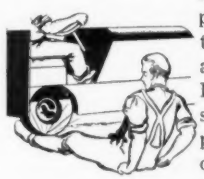
Prevention:

The trained and careful lift truck operator will not permit other workers to ride with him on the battery, on the fork, or on the load carried. To permit them to do so is an invitation for accidents and injuries of the sort described in the above news clipping. See the article, *"Safe Operation of Fork Trucks,"* which appeared in the September, 1947 issue of *Occupational Hazards.*

◆

Harrisburg, Pa., Patriot

Seriously injured when he fell into the path of a shop car at the Central Iron and Steel Company plant, Earl H. Slaughter, 21, was taken to the Harrisburg Hospital. Attendants there said he almost lost his left leg, which suffered a compound fracture of both bones and a severe laceration. An emergency operation was performed and physicians believe the leg will be saved.



Prevention:

Drivers of shop cars should operate their vehicles in such a manner that accidents of this type are eliminated. They should be instructed never to exceed five or six miles per hour when driving through areas in which persons are working. Busy aisle intersections should be posted with STOP, SLOW, or CAUTION signs. In some plants ingenious mirror arrangements have been installed over the intersection which permits the shop car driver to observe all approaches as he nears the intersection. Like city traffic ordinances, plant traffic regulations should be rigidly enforced.

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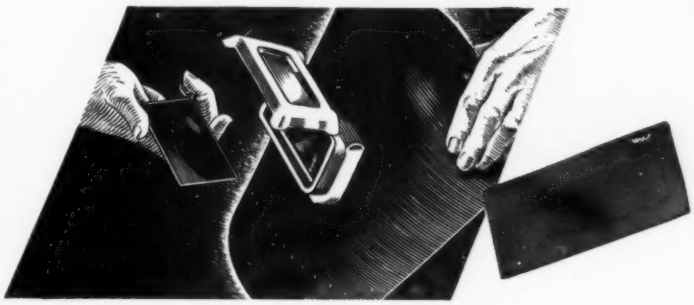
Style No. 130

A LITTLE MONEY GOES A LONG WAY. . . to give dependable protection to face and eyes in this ruggedly built, low cost helmet. Willson-Weld glass in non-corrosive metal holder.

Style No. 60S

GIVE WELDERS' EYES A LIFT . . . Flip-front on this one piece helmet allows quick, easy inspection and is convenient for working in close quarters. Willson-Weld Glass in hinged portion.



WW THE MARK OF MEASURED PROTECTION . . . The Willson-Weld* trade-mark on welding glass is your assurance of accurate grading for density of shade and thickness to meet or exceed government specifications

*Reg. U. S. Pat. Off.

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The author, left, and A. A. Maxwell, General Superintendent of the Gloucester Plant of The Ruberoid Co., look at a safety certificate awarded the plant for outstanding accident prevention efforts. A top production man, Mr. Maxwell is also aware of safety and has often said that "safety and production go hand in hand. We do not want a man's blood in our products!"

AWARENESS . . . KEY WORD TO SA

By P. J. BAILEY,
Personnel Supervisor, Gloucester City,
New Jersey Plant of The Ruberoid Co.

The author of this article describes himself as "a reformed trade magazine writer turned personnel man" who has retained his knack for "getting the story." This article is proof that Mr. Bailey "got the story" on The Ruberoid Company's important program designed to make all employees AWARE of Safety. He explains how Ruberoid—

- Conducts the meetings of the General Safety Committee
- Causes new employees to become aware of safety
- Fits incentive plans into the safety program
- "Sells" safety equipment to the worker
- Insist that Safety and Production go hand in hand

THE sweated workers looking at one of the bulletin boards in the Gloucester City, New Jersey Plant of The Ruberoid Co. were getting a bang out of something but for different reasons.

"Sure, it's mine!" said John, the shorter of the two. He slowly read aloud the white shiny words formed by the movable letters on the board. "John McKinney says, 'Use your head and save your feet—wear Safety Shoes!'" He turned to the other man and demanded, "What's wrong with it? Good as that slogan you had up last week! And if more guys would . . . . ."

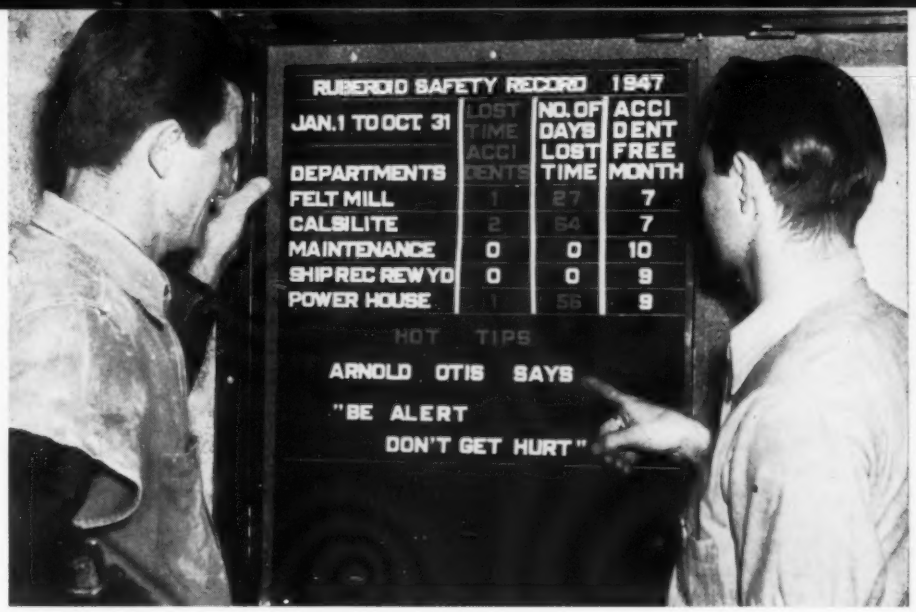
We leave them arguing but cheerful—and AWARE. It is a good sign when two employees take time out to discuss safety on the job.

But how were they made AWARE? That's the story.

Back in May, 1944, we, in the Gloucester Plant of The Ruberoid Co., were made aware that a new and much more comprehensive and effective Safety Control Program had been inaugurated. Top management, after careful study and analysis of the requirements in all of the company's twelve plants, had developed an over-all program of accident prevention based on the all-important principle of "Employee Awareness".

Frederick E. Byrnes, Assistant to the President of The Ruberoid Co., heads the program as a whole. It is

part of the incentive plan in action. ere employee Arnold Otis points with de to his "Hot Tip" while his fellow rker looks on approvingly.



SAFETY

monitored by Emil Woodman, Safety Engineer extraordinary with a Johnny Appleseed manner who continuously travels the rounds of all Ruberoid plants from Vermont to Texas and from Mobile to Minneapolis; and, like Johnny Appleseed, it is from the seeds he leaves planted behind that grows our local AWARENESS.

An outstanding feature of the program is its flexibility. The importance of this will be evident when it is remembered that The Ruberoid Co. manufactures a wide variety of asphalt, and asbestos building, insulating and industrial products. For this reason the Safety Control Program, while holding fast everywhere to the fundamental principles of employee awareness, provides latitude for the differing conditions in our plants—no two alike—so that each plant may find a satisfactory answer to its particular problems. And what is more important, it provides opportunity for local initiative and enterprise in achieving the best of all work places — The Safe Plant.

From here on, it is the story of the Gloucester Plant—a pulp and paper mill manufacturing dry felt to keep our Roofing Mills supplied, a thermal insulation plant, and a power house sufficiently large to supply power, light, heat and steam not only to our own enterprises but to a large neighboring industry nearby.

My boss is Mr. A. A. Maxwell, better known to all in the plant from laborer to tour boss as "Max". He likes it that way. Max is the General Superintendent of the Gloucester Plant and a top production man who has built our tonnage up and up until we truly have earned the distinction of being the largest roofing felt mill in the world. Max is also a Safety Man who is aware of the value of AWARENESS when it comes to a good Safety Control Program. Time and time again I have heard him say, "Safety and Production go hand in hand. We do not

(Continued on Page 33)

Departmental Chairman Samuel Matlack leading a discussion on personal protective equipment in the Maintenance Department Safety Meeting, an important part of the over-all safety program.

The author demonstrates how Ruberoid "sells" safety equipment. He is shown here assisting Machinist John Horn in making a selection of proper eye protection suitable for his job.

INDUSTRY News

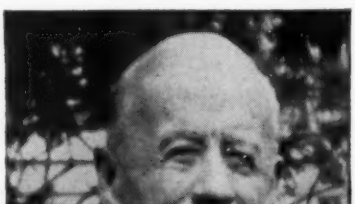
ADMINISTRATIVE HEAD FOR ASA . . . Vice Admiral George F. Hussey, Jr., USN (Ret.), wartime Chief of the Navy's Bureau of Ordinance, has joined the staff of the American Standards Association as administrative head of that organization. In accepting the appointment, Ad-

Admiral Hussey

miral Hussey takes over the tremendously increased administrative responsibilities from P. G. Agnew, under whose capable direction the ASA has progressed to its present high level. Dr. Agnew, one of the world's foremost authorities on standardization, will continue his service to ASA as Consultant.

MEMORIUM . . . It is with great sadness that the Lehigh Safety Shoe Company announces the death of C. H. "Charlie" Clauser. Mr. Clauser, 73 years old, passed away in Sacred Heart Hospital, Allentown, Pa. He was known and loved not only by all his fellow workers at Lehigh, but by a host of friends in industry throughout the country.

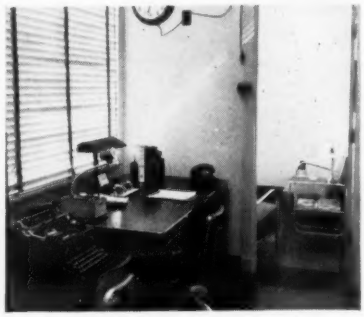
It was just forty-five years ago that young Charlie took a couple of fibre-box-toe brogans under his arm and dropped in on industry to talk about the radical new idea of foot-protective shoes. He figured he could render a real service to industry and build a fine business at the same time if he could put over his idea of shoes with foolproof toe-protection built right in. He was right on both counts. Industry listened to him and has been listening ever since. He developed the Foreman type safety shoe and talked his company into the outlay for new lasts for it . . . planned new molds for toe boxes. He was one of the first to recognize the need for the steel toe box. His accounts included such in-



Mr. Clauser

dustrial giants as Bethlehem Steel Corp. His entire 25 years in the safety shoe business have been with the Lehigh Safety Shoe Company of Allentown, Pa. He will be sadly missed as a friend and adviser by all at Lehigh, and by his myriad friends in industry everywhere.

NEW PLANT HOSPITAL . . . The Toledo, Ohio, plant of the National Supply Company has completed a new modern 8-room hospital and Medical Unit that is considered to be completely and adequately equipped to treat all accidents that may occur in the plant. A comprehensive study of hospital units in larger industrial companies provided the basis for the design and furnishing of this department. The unit includes a patient's examination room, a black-walled



Office and Waiting Room

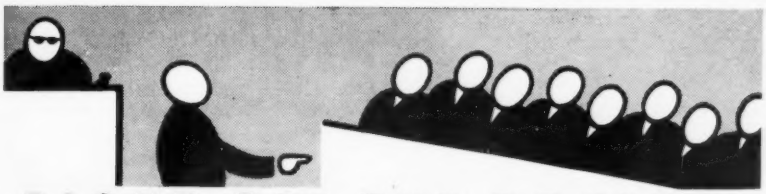
eye examination and treatment room, a first aid and general treatment room, a lead lined x-ray room, an operating room, a dressing room, a waiting room for patients, and an office for the nurse. Equipment is complete and modern.

THREE NEW SALES MANAGERS . . . The appointment of three new Zone Sales Managers is announced by E. A. Warren, Vice President in Charge of Sales for The General Detroit Corp. The new appointees are Charles W. Self, Paul R. Warren and John Macksey. Mr. Self will be in charge of the Cincinnati Zone office; Mr. Warren of the Boston Zone

Mr. Warren

office and Mr. Macksey in charge of the St. Louis Zone office.

The General Detroit Corp.'s line of portable fire extinguishers includes vaporizing liquid, carbon dioxide, foam, soda-acid, and pump types marketed under the name QUICK AIR FIRE GUARD.



RIGHT OFF THE DOCKET

The trend of litigation on workmen's health and accident compensation is reflected in these briefs on the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist. Clip cases and file for future reference.

Suffers Heart Attack While Leaving Work

CARPENTER was employed on Friday, July 10, 1942, and first reported for work on the following Monday, July 13, 1942. He continued to work until July 20, 1942, on which date, while walking to his car to return home, after he had completed his day's work and had taken a shower, he became suddenly ill. He was still on his employer's property and returned to the medical department maintained by his employer. He was attended immediately about 4:30 P. M., by the physician then in charge. He was put to bed and given medical attention, but died at 5:50 P. M.

There is conflicting testimony as to the type of work that Carpenter was doing prior to his death. There was nothing to indicate that he was doing any heavy work that might have been capable of producing a heart strain. He made no complaints to his co-employees during the hours of employment and made no complaints in the shower room.

One witness noticed nothing wrong with him when he saw him in the locker room after their shower following the completion of their day's work and in response to a passing question replied, "I feel all right".

The claimant failed to prove by a clear preponderance of the evidence that the decedent, on the day of his death, met with any such unusual incident or exerted any such effort or strain in discharging the duties of his employment as to be denominated an accident. The most that can be said is that Carpenter became suddenly ill and died shortly after completing his day's work. From all of the evidence, it cannot fairly be said that the decedent's death from the coronary occlusion would not have happened but for his employment.

There is a presumption that any death from heart disease is the result of natural causes; the onus is on the claimant to establish that the asserted accident was at least a contributory cause without which the occlusion would not have occurred. The fact that an employee continued his occupation when he should rest and because of continuing his employment, thereafter suffers a heart failure from which he is disabled or dies, does not in itself form a basis for compensation. The words "accident" and "employment" are not synonymous. Injury to be compensable must result from an event or happening beyond the mere employment. Coronary occlusion without proof of injury by accident does not give rise to a claim.

Claim denied.

Carpenter vs. Calco Chemical Division of American Cyanamid Co. of Boundbrook, Court of Common Pleas of New Jersey, Sommerset County, Sept. 22, 1947,
55 Atlantic Reporter,
2d Series, Page 44

Injured In Elevator Before Working Hours

NAN LYONS at the time of the accident was employed in the office of the Michigan Boulevard X-ray Laboratory, as a bookkeeper, typist and receptionist. The office and laboratory was located on the 14th floor of the Michigan Boulevard Building.

She was required to be at work at 9:00 A. M., and on the day of the accident in accordance with her custom, she entered the building from the Washington street side.

The building had twenty-one floors and seven elevators. She got on the most westerly elevator twenty minutes to nine.

She stated that her intentions before she "started work" were to get off the elevator on the fourteenth floor in order to go to the rest room, which was on that floor, then leave her hat and coat at the office where she was employed, and then go to the ground floor to eat and have a cup of coffee at a public restaurant located on that floor.

The elevator made a stop on the eleventh floor and after it started up again the light fixture in the elevator fell and struck her on the top of the head, severly injuring her. The fixture was a rectangular piece of glass in the center of the ceiling of the elevator and a corner of the glass had been broken off at least two months before the accident, so that the part of the glass that remained was entirely away from one of the prongs which was designed to hold it in place.

A common law action against the building was filed by her for the injury sustained. Complaint was raised by the company that the claimant's injuries were not compensable under the Workmen's Compensation Act and that a recovery should be denied her in the instant case.

Claimant contends, however, that the accident occurred twenty minutes before her work began; that when she entered the elevator she was not engaged in any duty connected with her employment nor was she then subject to the supervision of her employer; that at the time of the accident she was not going directly to her work but was on her way to perform acts having no relation to the duties of her employment and at places chosen solely for her own convenience; that she was not engaged in any act that would advance the employer's work nor would the employer benefit in any way by her having breakfast in the building; that until 9:00 A. M., she was the mistress of her own time and action and had the right to leave the building and eat her breakfast in some restaurant not located in said building; that her presence on the elevator was for her own private purpose and convenience; that under the facts and the law, claimant was not in the course of her employment at the time of the accident, and the accident did not arise out of her employment.

The trial court, however, sustained the motion offered by the company and by reason thereof directed that the claimant secure recovery under the Workmen's Compensation Act. This judgment was, however, set aside by the Appellete Court on the grounds that there was serious error in directing the verdict in favor of the company. The record clearly indicates that the injuries received by the claimant did not arise by reason of any hazard incident to her employment, even though the accident in which she sustained injuries may have happened on the employer's premises.

It was construed that at the time of the injury, the employee was doing something for her own personal benefit and that as a consequence, the injuries did not occur or arise out of her employment.

The fact that the building owner used part of the rent paid by a tenant for the maintenance and operation of the building, including the elevator service, would not create an agency, nor would it establish as a matter of law, that the elevators and the building were a part of the tenants' premises, so as to release the owner from liability for negligence receiving injuries to tenants using elevators. The claimant, therefore, was awarded a new trial and given the right to maintain her common law action against the building owner for resulting injuries.

Lyons vs. Michigan Boulevard Building Company, Inc. Appellete Ct., of Ill., May 20, 1947
73 Northeastern reporter,
Second series, Page 776

Assault Gives Rise To Claim

THE Patent Button Company operates a button factory in Knoxville, Tenn. An ex-soldier named Walter Roach, had undertaken to secure employment there by operating a button molding machine. He showed himself either unfit for the operation of the machine or unwilling to work, and on September 15, 1945, he either quit or was discharged.

Nine days later, Roach appeared at the windows on the first floor of the factory and on the outside. He was armed with a 22 rifle. Shooting this weapon through the windows, he wounded or killed three or four of the employees while they were operating the machines.

The claimant was operating one of the machines, when Roach came to the window opposite the machine where he was working and told him to get away from the machine. As he was moving around his machine Roach shot him and inflicted the wound for which he seeks compensation.

Roach a complete stranger to Wahley, the claimant, and was not at the time of the shooting, a fellow employee. There was nothing to show that he bore him or any of the other employees any ill will. Roach was taken into custody after the shooting and adjudged to be criminally insane.

The question arises "do assaults arise out of the employment?" They do if the assault is causally related to the work. It is sufficient if after the event, there is apparent to the rational mind, a causual connection between the conditions under which

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NEO-CORD OIL RESISTANT
RESISTS OIL AND GREASE
IMBEDDED CORDS RESIST SKIDDING
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What's your safety problem? If "your slips are showing" the answer is Gro-Cord's NEO-CORD soles and heels on safety shoes. Cords for non-slip safety, genuine duPont Neoprene for longer wear under the most damaging conditions. Say it for safety, say it for economical longer wear — "NEO-CORD." Genuine Neo-Cord soles and heels are manufactured only by Gro-Cord Rubber Company, Lima, Ohio.
ARE YOUR SLIPS SHOWING?
TRADE GRO CORD MARK
BOTTOMS THAT ARE TOPS IN SAFETY

the work is required to be performed and the resulting injury.

In the instant matter, it has been construed that the command to the claimant to get away from the machine inferred that operation of the machine was causally connected with the shooting. The fact that the claimant was the operator was the reason why he was chosen for the assault. This is supported by the fact that all the other employees who were shot were similarly engaged in operating machines when shot and no one who was not so operating a machine was injured.

The claim was granted on the theory that the injuries arose out of the employment.

Wahley vs. Patent Button Co., Supreme Ct. of Tenn., Jan. 11, 1947

Deviation from Regular Employment Results in Injury

KINGSBERY on February 24, 1946, was employed by Clent Breedlove, who owned and operated an airport at Lubbock under the name of Clent Breedlove Aerial Service. On the date above mentioned, he was injured as a result of the crash of a glider in which he was riding and that he received severe injuries as a result, totally and permanently incapacitating him and rendering him unable to labor or earn money or obtain employment.

Claimant's duties were to fly airplanes owned and operated by Breedlove, to repair motors and airplanes when necessary, to instruct students in the art of flying and generally to perform such other tasks as were necessary about the institution.

Breedlove owned a glider, but it was not in use and had never been used in connection with the airport. While Kingsbery was a skilled pilot of powered airplanes, he had never acted as a pilot of a glider nor even ridden in one.

M. I. Hall owned a glider which he kept stored in one of Breedlove's hangers and on February 24, 1946, about noon, Hall decided to make a flight in his glider. It was a two seated affair. Hall got into the rear seat and Kingsbery got into the front seat of the glider, which was attached to one of Breedlove's airplanes. It was towed into the runway and into the air to a height of some 2000 feet, where the glider was released and glided over the area for some 10 or 15 minutes. It was equipped with dual controls and after it was released from the airplane Hall observed that Kingsbery was adept at the controls and permitted him to pilot the glider practically the entire flight. When they were descending to the runway and had reached a height of about 200 feet the glider suddenly made a "nose dive" and crashed against the ground, and sustained injuries which Kingsbery complains of.

Company denies recovery on the theory that the injuries were not sustained out of or in the course of his employment. There is nothing in the record that indicates that claimant had any authority to ride in the glider nor was he instructed by any person with such authority to do so. It is contended that the manager had knowledge of the proposed flight. There is nothing to indicate that this manager had any authority to instruct Kingsbery to take a glider flight. Kingsbery at the time he made the flight with Hall for the moment turned aside his employ-

Safe-T-vis: the goggles that workers will wear because they're *Light!*

No purse?

No drawer?

No back pocket?

No, the glamor gal's catch-all and the upper right hand cache may be full with the accumulation of years, the pocket may bulge—but you won't find lightweight Safe-T-vis there. Not during working hours you won't!

The weight of *two* Safe-T-vis lenses, made from a new allyl casting resin, is approximately the same as that of *one* case hardened glass lens of the same size.

8-HOUR Comfort

Workers find Safe-T-vis lightweight, attractive and comfortable. What a change from old type goggles whose weight causes workers to remove them chancing exposure to hazard!

8-HOUR Protection

Real protection comes only when goggles are worn *throughout* the period of exposure. And complete protection is the *only* function of any safety goggle.

And they are SAFE

Standard drop-ball tests prove Safe-T-vis' superiority over ordinary eye protection. Safe-T-vis offers greater resistance to abrasion than do other plastic lenses. It resists the stresses of high velocity impact, corrosion and other causes of industrial eye injury to the most exacting specifications.

Write for booklet giving complete details.

Safe-T-vis

Lightweight protective spectacles

A product of THE UNIVIS LENS COMPANY, Dayton 1, Ohio

ment with the Breedlove's Air Service and was not engaged in the course of trade, business, profession or occupation of his employer at the time he received his injuries. It is a well settled rule that where injuries occur while an employee is engaged in his employment and results from some peril, risk or hazard inherent or incident to the conduct of the work or business of employer he is entitled to compensation *but where he engages in some activity outside of the scope of his employment even though he might have been upon the premises where he was employed, such injuries are not compensable.*
Great American Indemnity Company vs. Kingsbery, Court of Civil Appeals of Texas, March 17, 1947
201 Southwestern Reporter, Second Series, Page 611

Injury Turns To Cancer

DAVIS seeks compensation for the loss of the use of his left arm which he claims resulted from an accidental injury to the middle finger of his left hand inflicted on November 10, 1945. The employer denied the occurrence of the accident.

Record reveals that prior to the date above mentioned, both the finger and his hand had apparently been perfectly well, that he reported the injury to his superior immediately and was sent to the mill clinic, that the mill clinic was closed, it being past noon on a Saturday, and that he returned to his superior who applied first aid to the injured finger; that the injury was treated subsequently by the nurse at the mill clinic over a period of about four months; that two days after the injury the claimant was given a job stenciling addresses on boxes; that while so doing he got some stencil ink in the wound of the previous injury, that he reported this occurrence to the mill nurse who cautioned him that the ink might be poisonous and to wash it out of the injured finger.

On January, 1946, he again accidentally injured the same finger in the course of his employment and that the injury was also reported to his superior; The injured finger never got well, but continued to get worse. He was sent to numerous doctors after which he was told that he had a skin cancer and that his finger would have to be amputated; that on June 17th, 1946, the finger was amputated and the doctor cut some glands out of his arm and from under the arm pit to forestall the spread of the disease.

Company contends that claimant's condition did not arise out of the accident by reason of the fact that medical testimony indicated that trauma could not cause or aggrevate a pre-existing cancerous condition and cause it to spread.

It is admitted, however, by the various physicians that medical science does not know when the cancerous condition commences and when the condition turns into cancer and what causes the change. None of the physicians would deny, however, that continual tearing, beating or mashing of the finger would cause it to turn into cancer.

It was the company's contention that disability occurred by reason of some intervening cause.

An award was made on the basis of 100% disability.
Davis vs. Bibb Manufacturing Company, Court of Appeals, Georgia. July 11, 1947
43 South Eastern Reporter, Second Series

A TRADE MARK of Good Business Sense

CLEAN SANITARY WASHROOMS

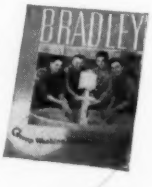
Modern wash facilities, such as Bradley Washfountains, make possible greatly improved washroom standards that pay off in employee goodwill and reduced operating costs.

Bradley Washfountains safeguard your workers' health and offer a convenience which eliminates crowding and "waiting turns". One Bradley serves 8 to 10 persons simultaneously, quickly and comfortably; while foot-control and self-flushing bowl keep hands free from contagious washbowl contacts.

A Bradley installation requires only a minimum of maintenance since one Bradley takes the place of numerous "single-person" wash basins with a similar savings in piping materials. Water consumption, too, is reduced 70 to 80%. These important factors are sound proof that a Bradley installation is "A TRADE MARK of Good Business Sense". . . BRADLEY WASHFOUNTAIN CO., 2259 W. Michigan St., Milwaukee 1, Wis.

Write for Latest 4-Color Catalog

A copy of the new illustrated 24-page Catalog 4701 is available for your files upon request.



NEW PRODUCTS

NP 1 — HAND CLEANER — To prove how effectively the new OB Hand Cleaner removes crude oil, grease, tar gum, varnish, creosote, printer's ink, and almost any substance not soluble in water, Oil Base, Inc., is offering a neatly packaged free sample to all who request one. A small dab rubbed into the hands like ordinary soap and wiped off on a paper towel or rag, will remove all traces of dirt and grime from the hands in a few seconds. Devoid of

water, OB Hand Cleaner protects hands from chapping, and is ideal for use in cold, dry climates. Packaged in one and five pound cans.

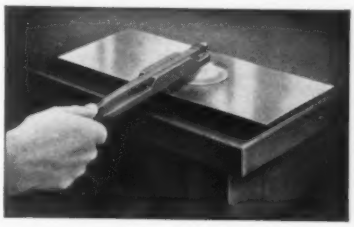
NP 2 — SAFETY LADDER LEG — Consolidated Sales Company have announced the manufacture of a new "Safety Ladder Leg" designed to give safety on any surface. One side of the attached foot is of corrugated rubber, which makes it slip proof on most surfaces. The other side is of sharp steel prongs for use on ice or other extremely slick surfaces. The foot can be removed and reversed in a few seconds to meet changing needs.

The new Safety Ladder Leg saves time which is normally used in hunting wedges and putting them in place to straighten ladder on rough ground. With the adjustable leg in use, ladders can be set up with perfect safety in places where it would be impossible to set up ordinary ladders. The unit comes complete and is easy to install. Weighs seven and one-half pounds; and is guaranteed for five years under hard usage.

NP 3 — "TANK TYPE" CLEANER — A new, all-purpose, industrial "Tank Type" Cleaner for general vacuum cleaning, dust collecting and water pick-up is announced by Ideal Industries, Inc. Modern design, rugged construction, easy operation and power to spare are all combined in

the unit. The IDEAL does not have an external bag to get in the way; instead it has a unique filtering system which is entirely self-contained. Collected dirt is easily emptied from the cleaner by simply raising the vacuum sealed lid and then lifting out the 9 gallon tank and dust bag.

NP 4 — VACUUM LIFTER — Industrial Products Company announces a new vacuum lifter designed for lifting, feeding and positioning sheets of metal and other



materials in stamping machines and die-presses. Eliminates danger to operator while positioning blanks. Time saving and practical in transferring metal blanks from piles or stacks, especially when oily or greasy and when difficult to grasp with the fingers. Operates by striking rubber cup against material to be handled. This produces and retains a vacuum within the cup until it is released by depressing conveniently located trigger.

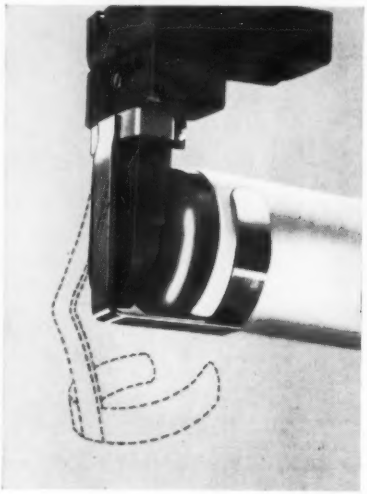
NP 5 — BARREL LIFTER — It is claimed by Merrill Brothers that their unique "Twin Barrel Lifter" brings the common metal barrel into its own as a substantial conveying and storage media. The device permits barrels to be hoisted straight up, rather than by the old make-

shift method of lifting it at an angle by gripping and raising from one

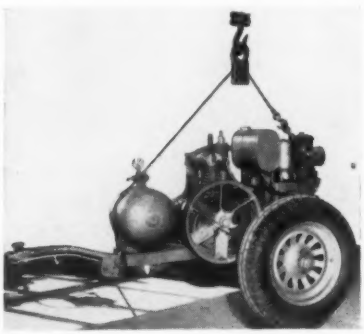
side. The new dual clamp is the adaptation of the regular Voltz Clamp to a form adaptable to the barrel—a device consisting of a cross arm with a Voltz Clamp attached to both ends. Clamps can be instantaneously attached and detached to and from the barrel. The heavier the load, the tighter the grip of the clamps.

NP 6 — FIRE EXTINGUISHER — Power-Pak Tire Inflator — Fire Extinguisher units are now available in a heavy duty model for emergency use in industrial plants and garages, the manufacturer recently announced. Big brother to the smaller 10-ounce automotive unit, the Heavy Duty model contains 2½ pounds of CO_2. With this increased capacity, the new power-Pak is an effective extinguisher for larger inflammable liquid, grease, oil, electrical and wood surface fires. In addition, it will inflate not only the largest commercial tires, but also a dozen average size passenger tires. Compact, and weighing only 8½ pounds, the Heavy Duty Power Pak is easily mounted by means of metal wall bracket provided.

NP 7 — SAFETY CLIPS FOR FLUORESCENTS— According to General Scientific Equipment Company, fluorescent tubes no longer need fall to cause injury, accidents or work interruptions. The Den-El Safety Clip holds fluorescent tubes in place regardless of the amount of vibration to which they are subjected. Made of resilient stainless steel, these Safety Clips are easily and permanently installed. The band that holds the tube is easily pulled aside when lamps are replaced, as shown in photograph, and resumes holding position when released



NP 8 — EQUALIZING SLINGS — A new level-load lifting sling which automatically adjusts the length of the legs hooked to the load according to weight distribution has been made available in all sizes of former designs from ¾-ton to 12-ton capacity models by The Caldwell Company. The sturdy, simple construction of this new model is said to eliminate mechanical operating difficulties and the possibility of breakage. A safety factor of five and a load ratio of two to one is ample to give maximum safety in preventing tipping or slipping accidents.

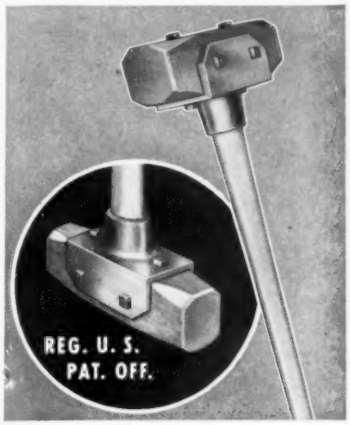


NP 9 — COVER-SPECS — American Industrial Safety Equipment is now producing the Cover-Specs model in its Champion line. The outstanding feature of this model is that it can be worn over eyeglasses of any type. The bridge provides rigidity so that both eyeglasses lift off as one, avoiding the annoyance and danger of goggles catching on eyeglasses. They are fitted with standard commercial or federal specification lenses as specified. Besides venting through side-screen ports, Eye-guard Champions have two additional ports in the side shields and seven ports around each lens.

NP 10 — BOTTLE - TYPE WATER COOLER— Designed for use where plumbing connections are not available, or where bottled spring water is preferred, is a new bottle-type electric water cooler by the Ebco Manufacturing Company. Known as the Oasis Model OB-4, the new cooler is finished in brown opalascent lacquer, the cabinet being of heavy guage galvanized and bonderized steel, strongly welded in construction.

NP 11—REINFORCED WOOD MAUL —Through the use of a cross-bolted aluminum alloy eye to join the head and handle, the weak point where mauls or mallets usually break is

strongly reinforced in the Metalocked Wood Maul, manufactured by Safety First Supply Company. This construction is said by the manufacturer to save the cost of frequent replacement of mallets and reduces the danger of the head flying off



and injuring workers. Cross-bolting holds the head rigid and prevents it from shifting. Heads are replaceable.

NP 12—METAL SOAP DISPENSER— A new all metal liquid soap dispenser that is virtually indestructible is announced by the Bobrick Manufacturing Corporation. Bobrick Model 12 is classed by the manufacturer as the finest heavy duty liquid dispenser they have ever made. The new product is produced in highly

polished Monel metal that will not rust or corrode. Concealed wall fastening makes it theft proof and an unbreakable "eye" informs the attendant when it is time to refill.

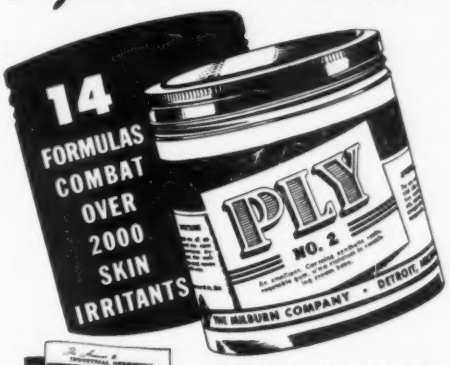
INDUSTRIAL MATTING
aids production 3 ways

It's safer! It's shock absorbing! It's skidproof! Industrial men everywhere are using KOFFLER rubber link matting. BUILT TO FIT YOUR SPECIAL REQUIREMENTS.

Write for details:

KOFFLER SALES CORPORATION 3757 N. RACINE AVE. CHICAGO 13, ILLINOIS

For the Tested and Proven
OUNCE OF PREVENTION
Against Industrial Dermatitis Use
PLY



THE BEFORE-WORK PROTECTIVE CREAM

There is no guess work in selecting the correct type of PLY, and a quick application before starting work gives workers protection against more than 2000 irritants which are the direct cause of Industrial Dermatitis.

By combating Industrial Dermatitis correctly, *before it occurs*, you will benefit by avoiding lost time, save on medical treatment and lower compensation costs. Write for samples, specifying the type of work.

INDUSTRY'S GUARD AGAINST DERMATITIS

"The Answer to Industrial Dermatitis," the only reference book of its kind, is especially helpful to Safety Engineers, Plant Physicians and Nurses, Personnel Directors and Works Managers.

PIONEERS IN RESEARCH FOR PREVENTION OF INDUSTRIAL DERMATITIS

THE MILBURN CO.
3202 E. WOODBRIDGE · DETROIT 7, MICH.

• BUILT FOR BETTER SERVICE • BUILT FOR BETTER SERVICE •

Lightweight, Sturdy Protection

● DOCKSON cover-spectacle goggles are hard to beat. Designed for maximum comfort and ample ventilation, they are light weight, non-fogging and sturdy.

Replaceable lenses to your specifications, permit wide vision range. Rigid brace bar allows easy adjustment and convenient raising and lowering with one hand.

These goggles offer maximum protection and comfort.

Available for chipping, grinding or welding use.

(Write for our Welding & Safety Equipment Catalogs)

DOCKSON CORPORATION 3839 WABASH • DETROIT 8, MICH.

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• BUILT FOR BETTER SERVICE •

Built-In Explosion Protection with MASTERPLATE Sparkproof Static-Disseminating Floors . . .

Where industrial processes involve explosion gases, liquids and dust conditions, Masterplate floors have become mandatory because they are sparkproof and static disseminating.

In addition, Masterplate floors are non-slip, dustless and have great durability — frequently wearing 4 to 6 times longer than plain concrete floors under the same conditions.

Masterplate provides these advantages because it produces a *thick* iron-concrete armorplate which is made possible by Master Builders Dispersing Agent, an exclusive feature of this product.

Where sparkproof, dustless, non-slip, easy-to-clean and long term economy features are desired for floors subjected to heavy traffic, specify Masterplate. It comes in plain and nine colors.

Write for Masterplate Pictorial Specifications booklet.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO TORONTO, ONTARIO

NP 13 — BREATHING EQUIPMENT —A new, light and snug fitting self-contained breathing apparatus has been announced by the Scott Aviation Corporation. It provides a minimum of 15 minutes use at extreme exertion and is supplied with a carrying case with provision for a spare cylinder. Called the "Seniro

Sling Pak, Model 000—B4" this product can be instantly readied for use and, because it snugly fits body contours, permits entry into unbreathable atmospheres through extremely small manholes or doors.

★

NP 14 — DERMESTHETIC OINTMENT— Industrial rashes, itching of poison oak, poison ivy and other pruritic conditions are given prolonged relief with Dermesthetic Ointment, a recently introduced product of Cutter Laboratories. It combines Benzly Alcohol, Phenol and Benzocaine to obtain triple-action anesthetic control of itching.

In addition to its anesthetic effect, the ointment is bacteriostatic, thus reducing the danger of secondary infection. Industrial physicians and nurses are invited to write for samples.

foundation supporting the derricks. On soil, the foot-blocks should be set on substantial timbers of sufficient strength to distribute the load. On floors of buildings, the foot blocks should be placed on timbers so that the load will be transmitted to the structural frame of the building. All guy lines should be safe from accidental contact with electric power lines and the boom and masts of derrick or crane should be properly grounded against accidental contact.

Operation of Derrick or Crane

Derricks and cranes should be operated only by a duly authorized person skilled in the use of the particular type employed. The operator is responsible, not only for the safety of the men who are working in his vicinity, but for the daily inspection and upkeep of the crane or derrick so that it remains safe to operate. When work is stopped or when the derrick or crane is not in operation, the boom should be lowered to a horizontal position or securely tied in place to prevent its accidental dropping or swaying.

If the operator is so located that there is danger of injury from falling objects, an overhead protection equivalent to that provided by 2 inch plank, laid tightly, should be provided. The exhaust from every internal combustion engine or steam engine should be piped to the outer air and should discharge at a height of not less than 3 feet above the head of the operator.

Riveting

Rivet heating equipment should be kept as near as possible to the riveting gang with whom the rivet heater is working. The hot rivets should never be thrown across shaftways or towards the outside of buildings, and if the job is being done on the outside wall, rivets should be passed by hand or thrown parallel to the wall line. If metal buckets are used to catch the rivets they should have false wooden bottoms to prevent rivets from rebounding.

Each rivet heater should wear goggles while working and should have a pail of water nearby for emergency use and for quenching the fire when stopping work.

Protection for Welders and Cutters

All persons engaged in welding or cutting operations should wear eye protection equipment of an approved type, provided with properly colored lenses fitted in suitable goggles. Such lenses and goggles not only protect the eyes of the worker from the heat and glare of the work, but also from the particles of hot metal. Those engaged in continuous operations should wear fire resisting gauntlet gloves and aprons.

Before cutting any large or heavy structural member, such member should be securely supported by ropes, cables, chains or other means to prevent dropping or swinging of the cut member. Structural members carrying any stress other than their own weight should not be cut.

Exposure to Poisonous Fumes

Workers can be exposed to poisonous fumes when riveting, cleaning or cutting if precautions have not been taken to remove paint (or any other compound which creates toxic fumes when heated) from the surface being worked on.

The rivet holes of field joints to be driven or bucked in confined or semi-confined spaces should be cleaned of paint by reaming or other suitable methods. All surfaces subject to heat from the rivets should be so cleaned as to prevent the creation of noxious fumes during the riveting process.

HOW MUCH
Did Slippery Floors
Cost You?
The ONE Floor Finish that provides ALL FIVE of these floor maintenance essentials (1) Slip Resistance (2) Wear Resistance (3) Water Resistance (4) Lustre (5) Self Leveling.
Use VESTA-GLOSS
Why risk costly damage suits resulting from accidents on slippery floors when VESTA-GLOSS provides slip-resistant safety combined with delightful floor beauty and long wear.
VESTA-GLOSS is entirely different from and better than customary floor waxes and finishes. Provides slip-resistance without being sticky or gummy. Amazingly durable—does not flake, crack or powder off. Easily applied . . . and easily cleaned. There's no better finish for ANY type of floor. Write us for free demonstration.
LISTED UNDER RE-EXAMINATION SERVICE UNDERWRITERS' LABORATORIES, INC.
UL
Approved by Underwriters' Laboratories
BRITEN-ALL
A highly concentrated liquid cleaning compound for floors and woodwork. Cleans better, safer, easier--at lower cost.
VESTAL ELECTRIC FLOOR MACHINE
Scrubs and polishes faster. Easy to operate. Exceptionally quiet. Sturdy, perfectly balanced construction.
VESTAL INC.
ST. LOUIS • NEW YORK

Where cleaning is done with a torch, the burner should use an approved airline respirator or other approved protective device. If such cleaning is done by scraping or grinding, the worker should wear an approved respirator. Each employee who is required to use respirators should have his own individual equipment—should check it daily and see to it that it is cleaned and sterilized regularly. When not in use, respirators should be stored in closed containers.

Needle Beam Scaffolds

Ropes used for the support of needle beams (not less than 4" x 6" in size with the greater dimension vertical) used for scaffolding should be of first class Manila fibre and not less than 1" in diameter. The ropes should be attached to the needle beams by a "square hitch" which should be so tied as to prevent the needle beam from rolling or otherwise becoming displaced.

When the span between needle beams is 10 feet or less, the platform planks should be not less than 2 inches in thickness and should be increased in thickness as the span is increased. The planks should extend at least two feet beyond the span between needle beams, and platforms kept as level as possible to prevent tripping and falling accidents.

Temporary Floors

Temporary floor filling, or the floor filling forms, except for temporary shaft-way openings, should be installed as the erection progresses. A temporary plank floor should be provided not less than 2 tiers below the tier of beams on which bolting, riveting or welding is being done.

On every other floor level at which the permanent floor filling or the floor filling forms have not been provided, a temporary plank floor should be placed. Such temporary floors are designed to cover the entire tier of beams, except for such places as are required for access to ladders and stairways and for hoisting purposes. These temporary floors should be kept as free from tripping hazards as possible. They should be made up of planks not less than 2" in thickness, should be laid close together, supported on a solid bearing, and securely fastened to the frame work of the structure.

Cables, Ropes, Chains, Slings and Hooks

All cables, chains, ropes, blocks and similar tackle should be of sufficient size and strength to safely raise, lower or sustain the load for which it is intended (see "Safe Use of Slings in Industry", January, OCCUPATIONAL HAZARDS). The maximum allowable working load of new cables, chains, ropes and blocks, as well as the proper care of them, should be based on information furnished by the manufacturer.

Pneumatic Tools

Pneumatic tools should be equipped with operating triggers so installed that the tool can be operated only while in the hands of the workman. Pipe lines and air hose should be frequently inspected and all defects remedied immediately. Adjustments to pneumatic tools or the moving or connecting of air hose should not be done until it has been ascertained that no air pressure is being supplied to the hose or tool. Air hose and pipe should be located so as not to constitute a tripping hazard and should be protected from contact with moving objects and from abrasion by sharp edges or rough surfaces. Nozzles of riveting guns should be regularly inspected to determine that any attachment does not become worn so as to permit rivet set to fly out.

Air pressure should never be used for dusting or cooling one's person and under no circumstances should it be used in practical jokes.

NON-SLIP REINFORCED
FINGERS·PALM·THUMB CROTCH

Genuine Natural Rubber
INDUSTRIAL GLOVES

Highly desirable for workers who handle wet, slippery objects. Heavy gauge, steam-cured, genuine natural rubber. High age-resistance and exceptional durability. The outstanding value and hand safety specification throughout industry.

*** NO. 5621 FIRM-GRIP STYLE**
LENGTH: 14 inches
GAUGE: .045-.055
COLOR: Brown
SIZES: 10, 11, 12
Also available in smooth finish (No. 5615)

** Request sample and quotations.*

SEIBERLING LATEX PRODUCTS CO.
AKRON, OHIO
200 - 5th Ave. Bldg., New York Merchandise Mart, Chicago

Americaine
TOPICAL ANESTHETIC OINTMENT

A NEW DISCOVERY

Only Americaine Ointments contain
20% BENZOCAINE IN SOLUTION

The unique combination of the active ingredients of Americaine Ointments make them ideally suited for treating industrial burns, surface injuries and dermatoses. Americaine Topical Anesthetic Ointments—clear or with chlorophyll—bring rapid relief from pain and itching and prevent surface infections in many types of injuries and dermatologic conditions encountered in industry.

Americaine Topical Anesthetic Ointments facilitate healing by (1) preventing and controlling surface infection, (2) alleviating pain, (3) relieving itching and (4) by stimulating normal cellular regeneration. The prolonged action of Americaine Ointments means fewer trips to the first-aid station for the injured worker.

SPECIAL INTRODUCTORY OFFER

Americaine, Inc.
166 W. Jackson Blvd.
Chicago 4, Illinois

Please send me four 1-ounce tubes of Americaine Ointment Clear and four 1-ounce tubes of Americaine Ointment with Chlorophyll. After using these Ointments for 30 days I will either approve the $7.08 invoice for payment or return the unused portion, if any, and there will be no charge.

Name .....
Address .....
City ..... State .....

TECHNICAL FILE ON METAL POISONING

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

C 189. TREATMENT. Removal from the hazard is the prerequisite for all treatment of any suspected arsenic poisoning, as in other metal exposures. Test for arsenic absorption show deposits of the metal in the urine, stool, hair and nails. The treatment of a chronic case, which must always be in the hands of a competent physician, follows elimination patterns with the administration of drugs to stop pain and diarrhea. Fluids are forced upon the victim and he is given milk and high-vitamin diet. The skin disorders are resistant to treatments and may disable the worker for months. The first aid room should have facilities for a quick stomach wash of warm water and for the subsequent administration of warm milk for cases of the more rare acute poisoning.

C 190. CONTROL. In the control of arsenic exposures, the main essentials follow those of other metal controls, such as lead. Adequate, safe ventilation is paramount. Air tests in the work room should be made often and contamination kept below the permissible concentrations, usually suggested at .5 milligrams of the arsenic trioxide per cubic meter of air. Personal protective aids for the worker and instruction in sanitation, as well as semi-annual physical examinations, should be provided.

C 191. INDUSTRIAL PHOSPHORUS. Phosphorus is a soft, waxy metalloid with a garlic odor, never found free in nature, but usually as phosphates. "Phosphorite" is the principle ore source. The bones of all animals contain large amounts of phosphates, which, at death, can be reclaimed by treatment with sulphuric acid and coke heat in a muffle furnace. The resulting form of the metalloid is white (sometimes called yellow) distilled phosphate, the toxic variety. This white phosphate ignites spontaneously in moist air at about 30 degrees Centigrade, and produces dangerous white fumes. If the white phosphorus is heated in the absence of oxygen, it is changed to the red, comparatively harmless form now in common use in the match manufacturing industry. The use of white phosphorus was stopped by putting a heavy tax on the matches produced from it. Thus, exposure to phosphorus was considerably minimized.

C 192. EXPOSURE. Other uses of phosphorus include the manufacture of fertilizer phosphate, fire-works, smoke-bombs, war gases, and bearing alloys, called phosphor-bronze. It must be remembered that some exposures to phosphorus poisoning still exist in the manufacture of phosphorus, in brass foundries and in the phosphor-bronze industry.

C193. CONTROL. Exposures to phosphorus poisoning are amendable to correct engineering control. The outstanding characteristic of phosphorus poisoning, which is always chronic in form, is the "phossy jaw" due to a degenerative attack on bone structures by the poison. The jaw becomes swollen, the teeth pain severely and foul breath is persistent. Even the sinuses become affected.

C194. TREATMENT. The heating processes, which entail a long period of disability, usually result in deforming scars and permanent disfigurement. The affected bones become brittle and fracture easily, sometimes spontaneously. The treatment generally involves the removal of infected or loosened teeth or bone fragments, and the draining of the infected area. Any cases of phosphorus poisoning that develop in industry should be removed immediately from work and put under an experienced surgeon-doctor's care.

C195. ANTIMONY. Antimony or stibium is a gray, lustruous, hard, brittle metal, found usually as a sulphide in ores. Its specific gravity is 6.67, melting point 630 degrees Centigrade, and boiling point about 1380 degrees Centigrade. It is practically insoluble in water or cold acids, but dissolves in hot concentrated hydrochloric acid.

C196. INDUSTRIAL USES. Antimony is used extensively in alloys because it expands on cooling, a property opposite to that of most other metals. Thus, antimony is used in printing-type metal to compensate in casting for the normal shrinkage of lead and other metals upon cooling. Antimonial lead is used also in grid manufacturing in the storage battery industry and in the production of certain bearing metals. Shot, colors, paints, enamelware, colored rubber, fireworks, munitions, and many other chemicals are among the products containing some of the metal.

C197. POTENTIAL HAZARD SOURCES. Steel plants, brass foundries, copper and zinc refineries, lead smelters, babbit-metal holders, electroplating works and electroplating industries are all classified as potential sources of antimony hazards. When substances containing antimony, or ists salsts, are reduced by treatment with certain acids, a very toxic gas, stibine, may occur as a dangerous byproduct.

C198. EXPOSURE AND SYMPTOMS. Antimony poisoning exposure occurs usually in the presence of fine powder or dust from metallic antimony or its compounds.

TECHNICAL FILE ON METAL POISONING

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

This dust gets on the skin, into the nose, mouth or throat, and is later ingested. Besides the resulting local irritations, the dust may cause acute stomach and intestinal disturbances. These actions of antimony resemble those of arsenic and lead, but are generally less severe. The skin troubles are usually irritations characterized by pus bodies, like smallpox, or by areas of eczema. Nasal membranes may become ulcerated. Ingested antimony produces a metallic taste, appetite-loss, vomiting and cramps that resemble lead colic in everything but the resultant diarrhea. Because arsenic is frequently an impurity of antimony and because lead is alloyed with antimony in many instances, complications from those two toxic agents often are confused with the effects of antimony exposure. However, the emergency treatment of the latter essentially follows that of arsenic and the industrial control follows that recommended for lead. For a specific diagnosis, antimony can be detected by test in the urine, skin and hair.

C199. NICKEL POISONING IN INDUSTRY. Nickel is a metal that is generally toxic in industry in the following forms only:

1. As the volatile liquid, nickel carbonyl
2. As a nickel salt used in electroplating

The danger of nickel poisoning is present throughout all carbonyl processes until the pure nickel is produced. The carbonyl is formed by heating the crude metal or ore with carbon monoxide. The resulting condensed liquid or carbonyl is volatile at ordinary temperatures and the vapors are highly injurious. When the liquid is decomposed, the process produces pure nickel.

C200. RESULTS OF EXPOSURE. Inhaling the nickel carbonyl can result in a quick, severe poisoning since the substance is absorbed at once into the bloodstream. The effect is a bleeding of the capillary vessels in such organs as the lungs, brain, spinal cord, the adrenal glands, and so on. A severe dose causes delirium, coma and possible death. The symptoms of the poisoning (dizziness, lung congestion, nausea and vomiting), follow the inhalation of the vapors almost at once. Upon reaching fresh air the victim may lose these symptoms, but they tend to recur to an increasing degree within twelve to thirty-six hours. The new signs are shortness of breath, hemorrhaging cough and high pulse and temperature, similar to symptoms of a dangerous broncho-pneumonia.

C201. TREATMENT AND PREVENTION. It is imperative that the victim of nickel poisoning be hospitalized immediately upon the first attack. Oxygen and carbon dioxide can then be administered as needed. Waste elimination is usually forced and the patient put on a diet low in fat. Full recognition of this hazard and the utilization of all available engineering controls to prevent exposure are of the utmost importance. Nickel carbonyl is reported dangerous if the work room air contains 1 part in 1000.

C202. SKIN PROTECTION. The nickel salts used in electroplating can cause eczema or "nickel itch", a skin lesion that spreads from the arm over the entire body. The salts do not affect every worker, but if one is once affected he may continue to have attacks. The condition is usually given normal eczema treatment, but it is slow to heal. All protection usually taken to prevent dermatitis should be utilized among nickel salt workers.

C203. BARIUM. Barium is a yellowish-white metal of low luster, found as a sulphate in an ore called crude barite. The specific gravity is 3.5, melting point 850 degrees Centigrade and boiling point 1140 Centigrade. Over eighty compounds of barium are known, both organic and inorganic, the most common of which is used in lithopone as a less toxic substitute for lead. Other compounds are used in glass manufacturing, rubber manufacturing, heat treatment for metals, well-drilling, cosmetic products, fireworks, X-ray, photography, tanning and allied processes.

C204. HAZARDS. The compounds of barium that are soluble in water or acid are definitely toxic. Taken internally (infrequent in industry), ingestion of 300 milligrams is known to be a toxic dose. The more usual results of industrial exposure are chronic in nature. Typical effects are dermatitis, irritation of the mucuous membranes, loss or graying of hair, and some systemic poisoning, less severe in symptoms than those which are caused by ingestion (vomiting, severe abdominal pains, chill, diarrhea, difficulty in swallowing and speech disorders). Insoluble barium dusts, when inhaled into the lungs, may dissolve eventually and become toxic in the circulatory system. *(To be continued)*

KEYWORD TO SAFETY
From Page 19

want a man's blood in our products!"

My job, as Personnel Supervisor, includes the job of Safety Supervisor. I act as representative of the General Superintendent in the application of the Safety Control Program at Gloucester, which takes in analyzing of accidents, including the first-aid cases, to determine outstanding problems and the corrective action that is necessary. It calls for personal inspection of the plant each week, heading up the Plant General Safety Committee as Chairman, also, supervising the keeping of safety records. In a small plant of 350 persons it soon becomes an easy matter to know each man by face and name, and because I know them, it follows that they know me better. This helps in my rambling through the plant — I'm not considered a "brass hat" — just another fellow willing to listen to the problem, be it safety or something else.

Plant General Safety Committee

In the Gloucester Plant the General Safety Committee is comprised of all the foremen, supervisors, department heads, plant engineer, who heads the Maintenance Department, and, of course, the General Superintendent. We meet once a month, usually the first Friday of the month for one hour. The unions are invited to sit in. Our function at Gloucester in these meetings is practically fifty per cent reportorial. The other fifty per cent is safety education—the seeds of AWARENESS are first watered here.

Let us look in on a meeting of the plant's General Safety Committee.

During the first few minutes there is a quick but accurate check of Physical Recommendations not completed and the reasons they are not completed. These recommendations came out of the departmental safety meetings and have been discussed in those meetings before reaching the General Safety Committee. In nine cases out of ten we do not question them because they have proven their merit and reason by passing through the screening of the departmental meetings. Next, the New Recommendations are examined and accepted. All physical recommendations are passed on to the Maintenance Department for completion.

New Men

We do not get many new men in the plant these days because our labor turnover is small. We do see to it though that each new worker on the job has the safety regulations explained to him by his foreman before he starts to work. The foreman cannot be satisfied with just a "once over lightly" instruction. He must TELL him what to do. He must SHOW him what to do. Thereafter he must TEST and CHECK him, placing emphasis on all safety factors at all times. He must see to it that his new man has proper and comfortable personal safety equipment in place if the job demands it.

Sure, we still make mistakes—a lot of them that could be avoided. But the sense of AWARENESS is such now that when a man, *be he foreman or worker*, makes an error either of commission or omission, he is the first to admit it. I remember an accident report of several months ago turned in by the head of one of our larger departments. In answer to the question, "What was the unsafe act committed?" the foreman wrote down, "I feel that I did not fully instruct this new man on all of the dangers of the job."

No one told the foreman to do that. He could have covered up because the injured man had done a stupid thing, but the foreman didn't cover

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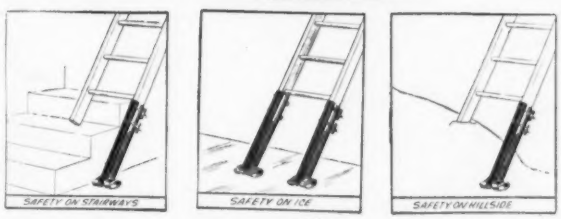
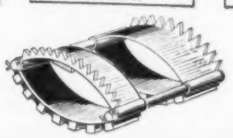


SAFETY LADDER LEG FOOT



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up. He was AWARE that he had slipped up somewhere in his teaching job. It takes a foreman with strong convictions of right and wrong to make a statement like that. There are a lot of foreman like that here at Gloucester. We have workmen like that, too. Men who grin sheepishly in the dispensary while being administered to and admonished by the Plant Nurse. Her question, "Why did it happen?" usually elicits a truthful answer and the answer is checked against the Cause Code. There is no lecture. There's no need for a lecture if he has been properly indoctrinated. His fellow workers probably will take care of that.

Incentives

We have not gone in for any safety incentive plans here at Gloucester with the single exception of selling the bonus system of keeping bodily intact. The bonus pays off in economic security, health and happiness. However, one little idea which clicked off nicely a year ago which I only touched on at the opening of this story is as follows: We placed around the plant several Safety Bulletin Boards with changeable letters on them, and then started a campaign of employee "endorsements" of common-sense safety ideas. These ideas or slogans are expressed in one short sentence and placed on the Safety Bulletin Boards coupled with the name of the man who presented the idea, under a heading entitled, "Hot Tips". Here are a few samples which have appeared on the boards in recent months:

"Matt Fanneli says: "Use the hand rail when going down stairs!"
Purdy Hines says: "Be sure the guard is in place before starting!"
George Brown says: "Housekeeping is a part of each man's job!"
Jim Kenney says: "Keep your eyes protected!"

The thoughts are not original as you can readily see, but the words actually come from the rank and file. Sometimes we edit a thought, but only to make it fit into a single sentence. They all just love to see their names on the boards in big, white shiny print. It appeals to the individual worker and that is why it wins. We have found that it is an idea that does not grow old with passing months. There is always someone who feels he can express himself better and more effectively than the current oracle, so my "endoresment basket" always has several ideas waiting publicizing.

Safety Equipment

In the issuing of personal safety equipment, including such items as eye protection, respirators, foot and hand protection, we use the "mail order" approach with the worker, treating him as the store keeper would treat the customer in securing what he feels he wants—as long as it is good for him.

This is not pampering. I have found that "selling" eye protection is very much like selling hats or shoes. Frequently, two individuals do not require the same size or style. Men working side by side on the same job but with differently built faces and noses must have differently styled goggles to provide adequate protection against the hazards of the job.

Occasionally I meet an individual who tells me, "But I just can't wear goggles!" He is sincere in that belief. He is carefully interviewed, given the lead so that he may state all of his reasons, factual and fancied, why he cannot wear eye protection. They are noted and are discussed. Then he is taken to the eye protection cabinet, and he selects the kind of eye protection which he feels most nearly meets his demands. Then we begin to analyze the protection

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required on his job and what is required for his comfort. It is pleasantly surprising how many times his complete opposition passes and how many times he is right in many of his objections. However, in practically every instance the objector has left with adequate eye protection because he has sold himself what he needs. He is AWARE not only of the hazards of his job but of the proper equipment to protect him from them.

Reported Accidents, Dispensary And First-Aid Reports

The next step in the meeting are the accident and dispensary reports. Any "Reported Accidents" during the past month are discussed in three phases: the Description of the Accident, its Cause, and the Correction. All "Reported Accidents" are coded according to Agency and to Cause—this coding arrived at after the investigation of the accident by the foreman of the injured employee. The Safety Supervisor assists in this coding, checking to see that the true cause of the accident is indicated, if the action necessary to prevent recurrence is stated clearly, if and when the action has been taken, and if the injured employee and his fellow workers are AWARE of the Cause and Prevention of such an accident in the future.

However, because of the decreasing number of Reported Accidents in the Gloucester Plant, even greater stress is placed on the analyzing and coding of the first-aid cases treated in the plant dispensary, under the capable direction of Mrs. Miriam Goforth, R. N., our Plant Nurse. Mrs. Goforth codes every first-aid case she can, and this roughly is about 90 per cent of the total treated each month. This coding gives a wealth of information but not on such things as "cuts", "bruises", "burns", etc., but on such vital information as "not wearing protective equipment", or "failure to provide clearance for fingers and feet", or "wet and slippery conditions", or "was working on moving machinery". There are a lot more. I shall attempt to show you shortly just how this information is handed back to the Departmental Meeting Chairmen so they may have some ammunition for their meetings and carry the message of AWARENESS down to the last man hired.

There are five departmental safety groups in the Plant. They are—Felt Mill Operation headed by Harold Cowdright as Chairman. Harold is the chubby foreman of the Rag Cutting Department. The Maintenance Department with Sam. Matlack of the Engineering Department as Chairman; the Shipping, Raw Materials Receiving, Deadening Felt Rewinding and the Yard Gang headed by our Shipper, Mark Abrams, and assisted by Harry McCracken who is Foreman of the Deadening Felt Rewinding and Yard Gang Departments; the Calsilite Department with Rod Gard as Chairman, and the Power House with Assistant Superintendent of Power House, Charlie O'Donald, in the chair. Here is the backbone of our Safety Control Program.

These chairmen are called upon in our General Meeting one by one to report accurately and factually on what transpires at their meetings. They are the men who reach the men. They are the leaders who plant the seeds of AWARENESS where they do the most good. We are interested in what they say and in what they accomplish.

A soldier cannot be sent into combat without ammunition. All men do not have equal abilities to face a group, lead and direct a meeting without being furnished something to mold that meeting into a firm, cohesive body with a single purpose in mind. Our departmental safety chairmen are provided with such ammunition as Description, Cause and Correction of the Reported Accidents occurring during the previous month. They are given a monthly compilation of the Accident Experience in all of the Ruberoid plants. This is made and distributed by Mr. Woodman. In it each accident throughout the company is broken down into Description, Cause and Correction. All of the accidents in Mr. Woodman's Accident Experience Report are not of a type or history which might be found in Gloucester. However, we have discovered that discussion in the departmental groups of all of these accidents is helpful and stimulating. They tend to further indoctrinate those participating and listening to the discussion with the all-important principle of AWARENESS. Added to this large pile of ammunition provided for the Departmental Chairmen is an analysis of all of the first-aid cases treated in the department during the previous month, broken down into "cause". However, when providing this last information to the Chairmen, they are cautioned against using it in a critical or derogatory manner. The purpose of such information is not to stop or curtail the all-important teaching to the new employee that each worker

(Continued on Page 38)

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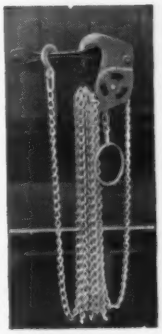

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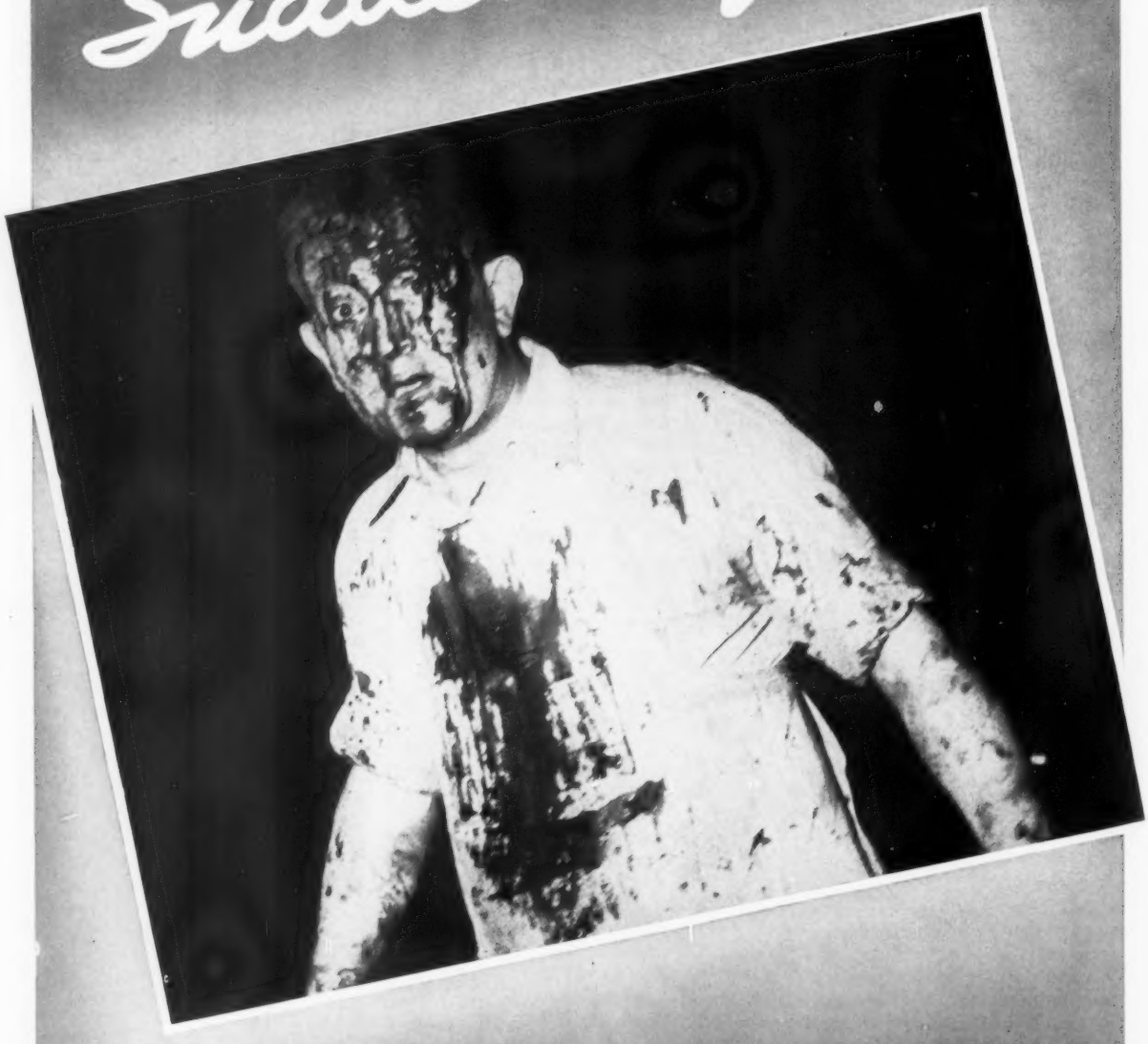

A few moments before this picture was taken, a gas explosion ripped apart a modern industrial building. Workmen failed to check new piping before admitting gas and this man ended up as the innocent victim of their carelessness.

← And Sudden Injury

AN accident illustrating the serious consequences that can result through the failure of the personal element occurred at a die-casting concern. New machines were being installed in the first story of the building, and two pipe fitters worked throughout the night connecting up a 3-inch overhead gas main from which burners at the new machines would be supplied. Toward morning when they had completed their work, they opened the control valve wide and admitted gas at five pounds pressure into the line. Then they started to inspect the piping for leaks. Unknown to them, however, the end of the gas pipe had not been capped, and, according to the recording meter, gas flowed into the system at the rate of 500 cubic feet per minute for a total of about eight minutes.

The open end of the pipe was located over a balcony at one end of the building around which partitions and differences in roof level formed a large pocket. In this the gas quickly accumulated, and thence spread out where it was soon ignited, probably from an acetylene torch being used by a workman on a near-by section of a conveyor. A terrific explosion took place which was felt a mile and a half away. Fortunately only a few employees were in the plant, five were hurt, and there were no fatalities.

This explosion was caused by the failure of the men working on the new installation to thoroughly check the system. It was the direct result of their carelessness.

It is highly important that every reasonable precaution be taken through training and supervision to insure safe handling of combustible gases. New gas piping should not be placed in service before the system has been carefully checked. The control valve should then be cracked open and the system allowed to come up to pressure as indicated by a gage. The valve should then be closed, the gage noted, and unless pressure remains constant, a further check for leaks should be made.

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KEYWORD TO SAFETY
From Page 35

shall report immediately for first-aid treatment when he is injured, no matter how small the scratch. Therefore, in discussion in departmental meetings the names of individuals who have required dispensary treament are never used; and for the same reason, the names of individuals who have suffered "Reported Accidents" are not used.

Another packet of ammunition given to the departmental chairmen is current "How to do it" information which fits into the work scheme of his group. Such information as the National Safety Council provides is used. The magazine, "Paper and Pulp Safety", is a favorite because it hits right at our target. We also use other good publication on the subject of working safety such as "Occupational Hazards". Catalogues on safety equipment play a prominent part in our departmental meetings and are used to point out to workers that injuries can be prevented or lessened by the wearing of proper safety equipment.

These departmental safety meetings are animated gatherings with all in attendance participating, but the chairmen do prevent them from being swung into channels dealing solely with Physical Hazards or Recommendations. Please understand that recognition is given to all Physical Recommendations which are needed for the immediate safety of our employees, but an equally important part of these meetings is that in which the chairmen build up Accident Awareness in the individual worker and show him how to protect not only himself but his fellow worker from unnecessary injury and pain and loss of time from work. The Chairmen ask for respect for the machines with which these men must work — machines which cannot come to the meeting room and which cannot hear what is said.

We have found at Gloucester that all men do not readily understand statistics. As much as possible, therefore, our departmental chairmen stay away from them when talking to the members of their departments. How five men suffered different minor injuries requiring first-aid treatment from *a single accident cause* carries more weight and impresses more individuals of the need for following commonsense safety practices than does a stilted discussion containing decimal pointed severity and frequency rates. These frequency and severity rates *are* important on the reports I make out each month. Statistics do have a place in Safety—but we have found that in meeting with the rank and file they like their safety "straight".

The earliest fears of the Chairmen who lead the departmental discussions was that they would have to dangle figures before the eyes and ears of their men. We do not use them except as heretofore stated. There are too many interesting and educational facets to be explored in this Safety Business — and the AWARENESS grows as the workers explore them. The departmental chairmen are the "key men" if such a hackneyed phrase is to be used anywhere. They carry the message of safety to their workers. I have sat in at their meetings and I know that they enjoy their role of teacher. The animated and fervent discussions that go on in these meetings are proof of that. They couldn't take it, otherwise. I remember a recent meeting at which one rather loud voiced worker persisted in talking about stretchers—a subject not then under discussion. Finally, after several interruptions by the querulous worker, the exasperated Chairman turned on him and declared, "Look, I'm here to keep you off a stretcher! Now come to order!"

The worker grinned and did. The meeting went on.

Safety Inspection Committee

Next in our General Safety Meeting we hear the report of the Safety Inspection Committee, a group of three members of the Plant General Safety Committee who are pledged to make several inspections throughout the plant each month. They are on the watch for unsafe practices primarily—eye protection not being used where needed or being improperly used on the forehead or around the neck. They look at housekeeping, stacking and piling. They keep their eyes open for what they consider as unsafe work methods or violation of safe-practice regulations or any unsafe condition which requires immediate attention.

The Safety Inspection Committee drops a man and adds a man each month with the oldest man in point of committee service being chairman during his last month. In this manner each member of the Safety Inspection Committee serves three months at a time. The finest thing is that in leaving the committee they tend to retain and strengthen in

their own departments the practices and conditions they attempted to maintain throughout the plant while they were Inspectors. Their sense of AWARENESS is more acute for having served.

General Discussion

Our General Safety Meeting is nearing its close. It usually winds up with a good fast ten minutes of general discussion on things of top importance. Last month the subject was "Crane Maintenance" with individual members of the Plant General Safety Committee working together constructively in successful effort to have certain maintenance measures put into effect. So our meeting ends on a good note. Every member around the big, green-topped table seems acutely AWARE of what has been going on for the past hour. He has seen the work of a solid month unrolled before him. He has been armed with something to take back to his men, be it the answer to a problem brought forth by one of his laborers, or a better method of inculcation for him to use on his men.

Because of this method of meeting the worker half-way in the selection and wearing of safety equipment, it is a comparatively simple matter to enforce the wearing of it on the job. A man cannot very easily refuse to wear something he has selected, so when the foreman occasionally does come across a man with goggles riding on the forehead, or a respirator hugging the chest, the erring worker feels very much as though he had been caught in the jam closet. He usually grins, slides the equipment into place and takes the reprimand. He is AWARE of the hazards even before the foreman repeats them and can only nod his head in red-faced chagrin, as the foreman finishes with: "It's part of your job to wear safety equipment. You know the hazards and you picked out the personal equipment you wear. If you don't want to wear it, you can't work on this job!"

And my Boss backs that idea up one hundred per cent!

LETTERS

From Page 5

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mission to have some reprints made? —Carl Molter, Sr., Safety Director, Endicott Johnson Corporation, Endicott, N. Y.

Good enough! Incidentally, while we're on the subject of this article, we would like to answer those thirty or forty readers who wrote to us during this last month voicing curiosity, objections and various and sundry comments on the title, "Electrical Hazards of the Plant Electrician."

"Why," asked many, "did you twice use the word 'electrical.' Why didn't the title merely read, 'Hazards of the Plant Electrician'?"

The answer is simple. Plant electricians are exposed to many hazards other than electrical ones. The article in question dealt only with the latter!—Ed.

"Penalize the Worker"

OCCUPATIONAL HAZARDS:

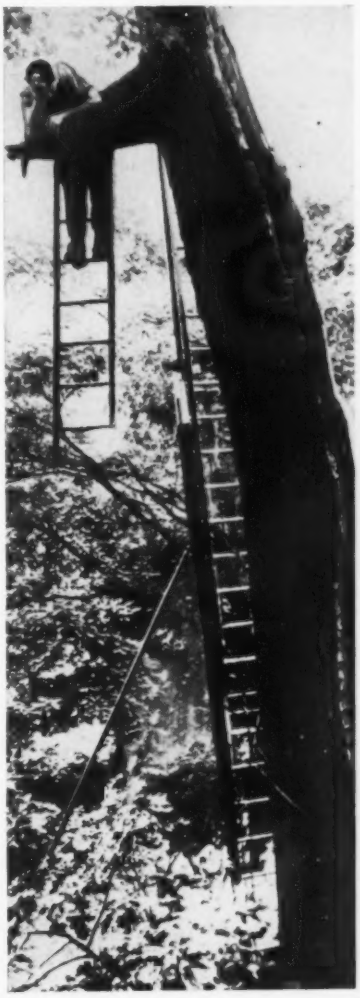
This letter is in response to the article, "Penalizing the Worker," which appeared in your August issue. Here are my observations about the matter:

Before the Safety Director recommends to his management penalties for violation of the rules covering the wearing and use of safety equipment, he had better be certain that he has done his job of selling the workman, the foreman and the supervisor on the value of the equipment. Give the men a chance to test out new devices. Try wearing some of the equipment himself, out with the crew, and learn how comfortable, or uncomfortable it may be. Listen patiently to the men's comments about its practicability. Let them feel that they have a part in studying the hazards, in selecting the equipment, and in writing the rules for its use. It has been my observation that occasionally there is a temptation to invoke a penalty which the foreman, supervisor and the safety director ought to split with the workman. Their's is the graver responsibility.

Safety training is so closely allied with job training that I see no reason for a special schedule of penalties. They should be treated in just the same manner as any other violations of Company rules or policies—wasting material, loafing on the job, poor workmanship, or what have you. When the Safety Director succeeds in making "Safety" an integral part of every machine, every man's overall training, and every operation, he will see results. But when he attempts to set up a little kingdom, of which you know who is the ruler, with its special rules and its special penalties, and without practical thought of getting the work done, he is in for trouble. Accident prevention must not be set apart as a "holier than thou" activity. It must blend into every activity even to the extent that safety committees, safety engineers, and safety directors will rarely have an opportunity to point to a specific project that they have accomplished of themselves. Their joy will be in knowing that a lot of people out on the playing field are carrying the ball for them,—under their tactful guidance.—I. C. Eppley, Asst. Manager, Electrical Div. and Chairman, General Safety Committee, The Dayton Power and Light Company, Ohio.

OUT ON A LIMB

John Kopsnyder hangs on for dear life to the stump of the tree limb on which he was marooned in Greensburgh, Pa., until firemen with extension ladders came to his rescue. John was pruning off a big limb. Now John did his sawing according to plan, and he didn't sit on the end he was sawing off—but—the sawed-off portion of the limb fell on the ladder on which John was standing,



snapping it off leaving him definitely "out on a limb". Firemen are shown about to take him from his perch. He was uninjured though it looks from here that he is in the mood for an aspirin or two . . . or something. (International News Photos.)

HERE'S A *Safer Way*

SAFETY ILLUSTRATED

NUMBER 14

Here are new pictures for your photographic safety manual. Clip and save.

This tool with the mushroomed head is a hazard. It is a hazard to the man who uses it and to the men around him. Perhaps some workmen would not think this tool "bad enough" to replace, but this man realizes a single metal chip flying from the ragged edge could cause someone to lose an eye or suffer other injury.

(Leeds and Northrup Co. Photos)

First aid for every injury is an important rule for everyone to follow. Don't take chances! All injuries should be treated in the plant dispensary regardless of how slight they may be—particles in eyes, scratches, cuts, bruises, etc.

(Leeds and Northrup Co. Photos)

FIRE PROTECTION FOR INDUSTRY

A SECTION IN WHICH ARE PRESENTED THE VARIED SPECIALIZED PROBLEMS AND SOLUTIONS TO FIRE FIGHTING CONTROL AND PROTECTION IN INDUSTRY

Table of Common Fire Hazardous Chemicals—Part 4 42
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Table of Common Fire Hazardous Chemicals

Part IV

From a table Prepared by Committees of the National Fire Protection Association and American Chemical Society.

Tentatively adopted 1928, *adopted* 1929, *amended* 1931, 1935, 1938, 1939, 1941, 1942 and 1944.

NOTE. These columns are informative only; it is not considered necessary that the material be kept or stored only in the containers as listed, nor that each package be labeled. The requirements in the table on the storage of containers refer to chemicals in usual containers, and are not intended to apply to small bottles of chemicals such as are found in drug stores and chemical laboratories.

Name	Usual Shipping Container	Fire Hazard	Storage	Fire Fighting Phases
Fulminate of Mercury		High explosive, (primary class)	Explosives restrictions.	
Fulminate of Silver		High explosive, (primary class)	Explosives restrictions.	
Hydro-chloric Acid (Muriatic Acid)	Tank cars (rubber-lined), carboys, and glass bottles.	Not combustible (in air) but if allowed to come in contact with common metals hydrogen is evolved, which may form explosive mixtures with air.	Safeguard containers against mechanical injury. Keep away from oxidizing agents, particularly nitric acid and chlorates. Avoid contact by leakage or otherwise with all common metals.	Use water or chemically basic substances such as soda ash or slaked lime.
Hydrocyanic Acid (Prussic Acid)	Cylinders, or when completely absorbed in inert material in metal cans without-side wooden boxes.	Forms flammable and explosive mixtures with air. Explosive range 6% (14) to about 40% by volume (horizontal propagation).	Isolate. Keep away from any source of heat. Safeguard containers against mechanical injury.	The gas is slightly lighter than air. Soluble in water. Water is the best extinguisher. When entering premises where used or stored during a fire, use oxygen helmet or gas mask equipped with canister of a type approved by the Bureau of Mines for hydrocyanic acid.
Hydrofluoric Acid (HF)	Aqueous solution in lead carboys and wax or gutta percha bottles.	Colorless, volatile liquid. Not combustible but reacts with glass and most substances, platinum being an exception. Aqueous solution also attacks glass and several metals.	Isolate. Ventilate Safeguard against mechanical injury.	Use water in case of fires involving hydrofluoric acid. Use oxygen helmet of a type approved for such use by the U. S. Bureau of Mines on entering atmospheres known to contain hydrofluoric acid vapors.
Hydrofluosilicic Acid	Lead carboys, hard rubber or paraffin bottles.	None.	Safeguard against mechanical injury.	
Hydrogen Peroxide (72.5 per cent by weight)	Glass ..carboys, ..aluminum drums, aluminum tank cars (all containers must be vented).	Oxidizing liquid. May cause ignition of combustible material if left standing in contact with it. May decompose violently if contaminated with iron, copper, chromium, and most metals or their salts.	Store in a cool place in ventilated containers remote from combustible material and catalytic metals such as iron, copper, chromium.	Use water.
Hydrogen Sulphide (Sulphuretted Hydrogen)	Steel cylinders.	Flammable gas. Forms flammable and explosive mixture with air or oxygen. Explosive range in air (upward propagation) 4.3 (low limit) to 46(4). Heavier than air. Specific gravity 1.19 (air = 1). Ignition temperature 346°-379° C. (655°-714° F.(1).	Store in ventilated place away from fuming nitric acid and oxidizing materials.	Use gas masks in entering atmospheres containing hydrogen sulphide. If, however, concentration is high, use oxygen helmet of a type approved for such use by U. S. Bureau of mines.
Lead Nitrate	Wooden barrels.	Oxidizing material. Classes with sodium nitrate.	Isolate; safeguard against mechanical injury.	
Lead Sulphocyanate	Fiber and stainless steel drums.	Slow-burning. Products of decomposition by heat in the presence of air include sulphur, carbon disulphide and nitrogen	Store in a dry place away from oxidizing materials.	Water is a good extinguishing agent.
Lime (unslaked)	—See calcium oxide			
Magnesium	Shavings or powder in tightly closed metal or metal-lined containers. Ingots and bars in ordinary boxes.	Combustible, particularly in the form of powder, shavings, or thin sheets. When powder is disseminated in the air, explodes by spark. In finely-divided form liberates hydrogen in contact with water. In massive form (ingots or blocks) comparatively difficult to ignite.	Store remote from water or moisture, oxidizing materials, chlorine, bromine, iodine, acids, and alkalies.	Smother with an excess of dry graphite. Dry sand may be used on small fires. Not advisable to use sand around machinery. Do not use water, foam, carbon tetrachloride, or carbon dioxide.
Magnesium Alloys (high percentage of magnesium)		In compact or bulk form (castings, plates, etc.) difficult to ignite. Readily combustible in form of dust, turnings, and hazardous in such form with chlorine, bromine, iodine, oxidizing agents, acids, and alkalies.	Store dust, shavings, and turnings in metal containers in detached building of fire-resistive room.	Smother with an excess of dry graphite. Dry sand may be used on small fires. Not advisable to use sand around machinery. Do not use water, foam, carbon tetrachloride, or carbon dioxide.

(To Be Continued)

MEET THE *Chief*...

OCCUPATIONAL HAZARDS will bring to its readers as a regular feature each month the true, inside story of an industrial fire, stressing HOW AND WHY IT HAPPENED. Each story will be told by the man who heads the fire department of a large city. These authentic accounts by men who devote their lives to fighting fires and to the study of fire hazards are presented to the readers of OCCUPATIONAL HAZARDS with the belief that they will be of value to fire protection men in industrial plants throught the country.

Chief Connie O'Sullivan joined the Memphis Fire Department in 1916. Except for the First World War period he has been fighting industrial fire, organizing industrial fire brigades and teaching fire prevention in general. Appointed Chief in 1943, he heads the fire department which has six times won top honors in national fire prevention competition. The City of Memphis Tennessee is justly proud of its Chief and the enviable record the department has made under his direction.

IS THE NIGHT WATCHMAN TO BLAME?

by

CHIEF CONNIE O'SULLIVAN,
Memphis Fire Department

HOW MANY TIMES HAVE PERSONS RESPONSIBLE FOR PLANT FIRE PROTECTION VIEWED THE RESULTS OF DISASTROUS FIRES AND THEN BLAME IT ON "NIGHT WATCHMAN FAILURE"? Unfortunately, it happens many times.

This situation really should be reversed and the blame should lie on the shoulders of the man responsible for plant safety. Such "night watchman failure" is in reality a direct reflection upon the way in which this man has conducted his plant fire protection program. He has failed to instruct the men assigned to such duties in the fundamental rules which should be observed by all night wathmen if they are to successfully pursue their duties.

The watchman first of all must realize the responsibility of his job.

He is entrusted with the important task of protecting large values against loss by fire. He should realize that many employees are dependent for their livelihood upon the permanent operation of the plant and property over which he has charge. He should have a personal interest in his work, guard it as he would his own home.

He should be familiar with, *and observe*, the following rules:

(1) Do not smoke while on duty.

(2) Do not use intoxicating liquor in any form while you are on duty.

(3) Make an inspection of your plant in the daytime—familiarize yourself thoroughly with every section and corner of the plant — look over the machinery and take special interest in the machines that might contain fire hazards.

(4) The first thing to do when you reach your work is to check your telephone, see that it is in working order. You should also know where the nearest telephone is to your plant in case something goes wrong with yours. If your telephone is out of order report it at once. You should know the proper method of calling the *FIRE* DEPARTMENT. You should know the exact street number and the nearest cross street. You should be able to tell what is on fire and in what part of the plant the fire is occurring. You should know the proper method of turning in an alarm over the A.D.T. Night Watchman System and know how to operate the Fire Department Alarm Box.

(5) The first inspection round is the most important. A general inspection of the plant should be made, noting carefully all conditions that exist—especially fire doors, fire shutters, sprinkler equipment and special hazardous operations of the plant. You should make an inspection of your plant every hour, regularly. In making your rounds use only an electric flashlight—*do not use a kerosene or oil lamp.* Do not leave the premises until checked out by the person relieving you.

(6) You should know the exact location of all fire alarm boxes. You should know the exact location of all fire apparatus on the premises and understand how to use them. Report immediately any defective or misplaced apparatus.

(7) Make a thorough check of your plant — see that it is clean, especially that there be no waste paper, oily cloths, rags, workmen's clothes, rubbish or other inflammable material. See that it is removed immediately.

(8) Familiarize yourself with the location of all furnaces, boil-

(Continued to Page 48)

What are you doing to eliminate

MAJOR FIRE CAUSES?

To eliminate fire causes, it is important to know the many ways in which fires can start. The following briefly outlines certain broad principles of fire prevention, based on a study of 19,485 fires in Factory Mutual plants over a 7-year period.

19% ELECTRICAL

The principal industrial fire cause. Electrical equipment is normally well designed and carefully installed. The trouble arises from lack of proper maintenance, or from the use of wrong-type equipment in hazardous areas.

14% FRICTION

Hot bearings, misaligned or broken machine parts, choking or jamming of material, poor adjustment of power drives and conveyors. Remedy is a regular schedule of inspection, maintenance, and lubrication.

12% FOREIGN SUBSTANCES

Tramp metal produces sparks in machines, cotton mills particularly. The remedy is care in keeping stock clean, and removal of foreign metal by magnetic or other separators.

9% OPEN FLAMES

Cutting and welding torches (particularly molten globules), gas and oil burners, misuse of gasoline and similar torches. Follow recognized precautions for cutting and welding. Keep burners properly adjusted and surroundings clean. Avoid use of open-flame torches near combustibles.

8% SMOKING & MATCHES

Dangerous practice where material can be ignited. Remedy is prohibition in such areas, with smoking permitted only in safe places under regulations understood by all, and rigidly enforced.

8% SPONTANEOUS IGNITION

Oily waste and rubbish, deposits in ducts and flues, storage of low-grade materials, industrial wastes. Remove waste daily, clean ducts and flues frequently, isolate storages subject to

8%	SMOKING & MATCHES	is prohibition in such areas, with smoking permitted only in safe places under regulations understood by all, and rigidly enforced.
8%	SPONTANEOUS IGNITION	Oily waste and rubbish, deposits in ducts and flues, storage of low-grade materials, industrial wastes. Remove waste daily, clean ducts and flues frequently, isolate storages subject to spontaneous heating.
7%	HOT SURFACES	Fires resulting from combustibles exposed to the normal heat from boilers and furnaces, hot ducts or flues, electric lamps or irons, and from hot metal being processed. Provide ample clearances, insulation, and air circulation. Check when leaving heated apparatus unattended. Arrange hot-metal handling to avoid igniting combustibles or quench baths.
6%	COMBUSTION SPARKS	From rubbish burning, foundry cupolas, engine stacks, furnaces and fire boxes, and from process equipment. Use well-designed and well-constructed combustion chambers, tightly enclosed, with spark arresters on stacks as needed.
3%	OVERHEATED MATERIALS	Caused by abnormal process temperatures involving such things as heated flammable liquids and materials in dryers. Careful supervision and competent operators, supplemented by well-maintained automatic temperature controls, are required.
2%	STATIC ELECTRICITY	Dangerous where flammable vapors may exist. Controlled by grounding, static eliminators, and humidification.
5%	MISCELLANEOUS	Includes fires communicating from near-by properties, and fires caused by molten substances, lightning, chemical action, and incendiarism.
7%	NOT DETERMINABLE	Evidence entirely lacking, too conflicting, or insufficient to warrant definite conclusion.

(Associated Factory Mutual Fire Insurance Companies)

A corp of maintenance men spend their entire time on the inspection of water control valves, inspection and testing of fire hose, and inspection and recharging of fire extinguishers.

FIRE MARSHALL
George C. Wilkinson

Fire Protection at R.C.A.

The RCA Victor Division of the Radio Corporation of America occupies thirty-two buildings within Camden, N. J. It is here that more than thirteen thousand employees produce the famous Victrola phonographs, RCA Victor records, RCA Victor Radios and other products. The entire plant, occupying some twelve city blocks, comes under the surveilance of Fire Marshall George C. Wilkinson. This article describes the Marshall's extensive fire prevention program which has not only made all employees alert to fire peril, but has contributed largely to the splendid fire prevention record which RCA Victor Division has maintained throughout the years.

THE home of the RCA Victor Division of the Radio Corporation of America spreads over an area consisting of 12 city blocks in Camden, N. J. In thirty-two buildings some thirteen thousand employees manufacture thousands of Victrola phonographs, RCA Victor records and RCA Victor radio sets. A city within a city, the huge plant is complete even to its own fire department.

Top man in the plant fire protection picture is Fire Marshal George S. Wilkinson. He heads an organization which includes regular firemen, many plant fire brigades, a corps of maintenance men and members of the plant police force. It is an organization that is elaborate, its regulations comprehensive and its rules observed by the entire plant personnel.

Long experience has qualified Marshal Wilkinson to carry the responsibilities that are his and which are, possibly, heavier than the average borne by industrial fire marshals. He has served in his present position for fifteen years, after four years as Assistant Fire Marshal. Prior to 1928 he was for six years Assistant Fire Marshal in the Fire Department of Bristol, Pa.

Under his supervision, RCA Victor Division is alert to fire peril. Fire hazards are kept to a minimum but the necessity for constant alertness is emphasized by certain potential fire hazardous manufacturing processes including the storage and use of flammable materials.

All portable cutting and welding operations are supervised by regular plant firemen. They also supervise

all sprinkler shut-downs, and are responsible for restoration of full protection. Finishing materials used in manufacturing processes are considered by Marshal Wilkinson as a special fire hazard. These materials are stored in fireproof vaults in each building where they are used. Usually they are issued from these vaults in safety cans. If released from a vault in a drum, and the entire contents of the drum are not consumed at the end of a work day, the drum must be returned to the vault. No drum is allowed on an open floor over night.

The fire brigade proper includes a corps of maintenance men. Members of the plant guard force also serve under the Fire Marshal in the matter of fire prevention, and are drilled for fire emergency. Nine employees have responsibilities as Building Fire Marshals, each in charge of one building or more. These men supervise the activities of floor fire brigades which include nearly four thousand employees. In periodic drills emphasis is placed on the proper use of every unit of fire protection equipment on hand. The plant is equipped with more than fourteen hundred hand fire extinguishers and 25,000 feet of fire hose. Class A hazards are protected principally by soda-acid extinguishers. There are a few pump tanks or cartridge operated water type extinguishers. Class B hazards are protected principally by carbon dioxide extinguishers, with some reliance on foam. Class C hazards are protected in the main by vaporizing liquid extinguishers, with a smaller number of carbon dioxide units.

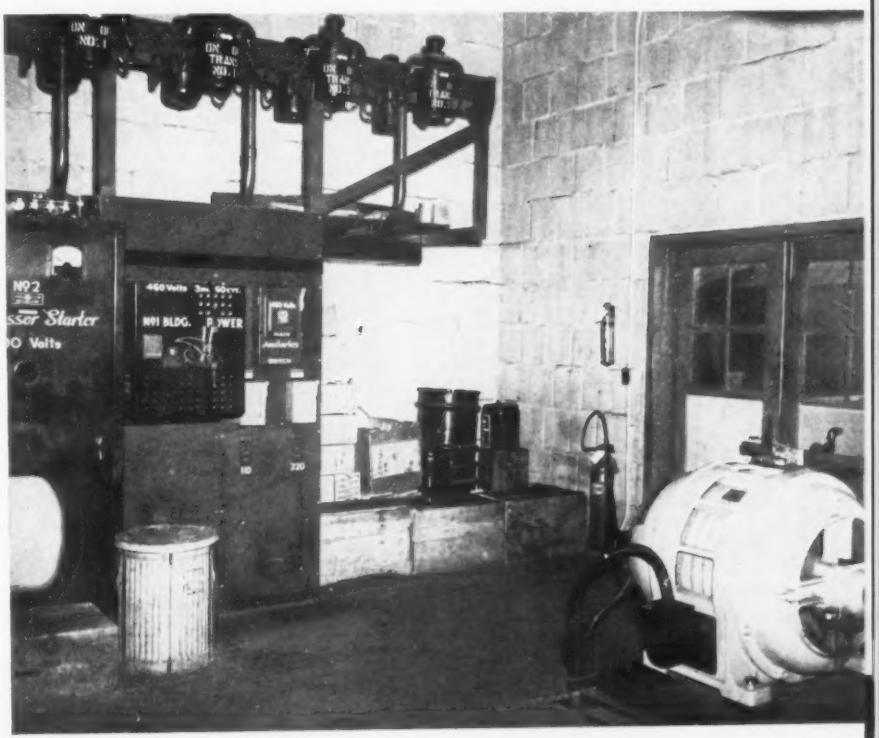
At the end of the work day a Guard Force takes over the responsibility for plant safety. Patrol rounds are made hourly, and reports sent in to Guard Headquarters on the conditions in each building.

Reporting directly to the Fire Marshal's office are six maintenance men whose entire time is given to the inspection of water control valves, inspection and testing of fire hose, and inspection and recharging of extinguishers.

Though there has been, as is natural in such a large plant, an occasional small fire, they have all been promptly extinguished and there has never been a fire of any consequence at RCA Victor Division. This in itself is proof of the effectiveness of the plant fire protection organization. It is a tribute to Fire Marshal Wilkinson's work and to that of his associated personnel.

Fire Marshal Wilkinson is shown here demonstrating fire extinguishers and all-service gas masks to some members of RCA Victor Division's guard force.

Vaporizing liquid and carbon dioxide extinguishers are strategically placed for protection against fire hazards represented by the electric circuits from motor generators. The plant is equipped with over fourteen hundred extinguishers.



Useful Literature

FL-1 . . . A booklet has been prepared by the Ranetite Manufacturing Company which should be of much interest to maintenance men and safety engineers who are confronted with a waterproofing problem. The booklet describes "Ranetite" No. VVV Cement Waterproofing which is guaranteed by the manufacturer to make and maintain a watertight job. The product will resist brine, hot water, steam, fuel oil, distillate, acid fumes and other fumes. "Ranetite" waterproof mortor is permanent and is applied to the inside, and does not require any protecting wall or double floor construction. Ideal for waterproofing concrete basements and floors, and roofs, this was the product chosen to waterproof the gigantic Bonneville Dam.

FL-2 . . . Just published by the Stonhard Company is a large colorful folder describing STONHARD RESURFACES, the heavy-duty material for repairs and overlays to concrete and wood floors. Illustrations show several typical installations and demonstrate the versatility of this practical material in solving floor problems. The manufacturer explains that costly chipping, necessary to anchor new concrete to old, and other expensive base preparations are eliminated in resurfacing or patching floors with the Stonhard product, since this material is applied to a thickness of ½" right over the old surface. Folder includes a safety-performance check list.

FL-3 . . . A new eight page booklet explaining the operation and application of the Multi-Duty self-cleaning air filter for engine and compressor service has been issued by American Air Filter Co. Installation photographs as well as detailed engineers data are included.

FL-4 . . . Corlett-Turner Company have prepared a circular entitled, "More Efficient Small Tool Grinding." This literature describes the company's G3 Grinder which is also adaptable for deburring, buffing, polishing and numerous other applications. The manufacturer points out that proper grinding speed is essential to maximum grinding efficiency and safety. The G3 Grinder has a three step pulley arrangement which provides the proper speed for each wheel size. An automatic safety feature prevents the careless use of a wheel of larger diameter than that safely recommended for the spindle speed to which the belt is adjusted.

FL-5 . . . The St. Louis Fire Door Co. have prepared a technical bulletin that will be welcomed by all persons directly or indirectly responsible for plant fire protection. The literature describes through use of drawings and pictures the salient facts on fire doors, where and how they should be installed, and what the inspector and purchaser should look for in a fire door. The company describes their various types of doors, all of which bear the National Board of Fire Underwriters' approved label. Specifications for various type doors are given in this valuable booklet, as well as many pictures showing actual industrial installations.

FL-6 . . . A new booklet covering one of the many phases of accident prevention in the handling and use of liquefied gases has been published by the National Conservation Bureau, accident prevention division of the Association of Casualty and Surety Companies. The new booklet, "Safe Storage, Transfer and Distribution of Liquefied Petroleum Gases," is eighth in a series prepared by the Bureau. Its main topics include storage, liquid transfer, distribution and cylinders.

FL-7 . . . A three color release by Oil-Dri Corporation describes that company's ABRASIVE ANTI-SLIP FLOOR COATING which is designed to give all walking surfaces safe footing under all slippery conditions. Easy to use on any surface, anywhere, and applied with brush or trowel. The product adheres firmly to wood, concrete, steel, aluminum, solid areas or perforated. Standard color is grey but green, blue or red can be obtained upon special order. Packaged in 5-gallon pails; 1-gallon and 1 quart cans.

MEET THE CHIEF
From Page 43

ers, heaters and heating equipment—see that they are in safe condition.

(9) You should know the exact location of gas shut-off valves and electric light and power cut-off switches. Notice electrical wiring, switches, and fuses—report any defects.

(10) You should have full instructions as to details of operation of automatic sprinkler equipment and the turning on and shutting off of water.

(11) You should know the exact location of acids, chemicals, oils and explosives — report and have removed any hazards that exist around these.

If every night watchman is instructed in these rules and precautions; if an adequate check system is set up to insure that he follow such rules and precautions, the term *"night watchmen failure"* would soon pass out of existence.

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ARDS

HIGH-PRESSURE MOLDED OF LAMINATED BAKELITE

-The hats that take care of their heads!

M.S.A. Skullgards

FEATURES

- Light and Comfortable
- Tremendous resistance to impact
- Weatherproof
- Cannot Soften, Swell or Gain in Weight
- High Dielectric Strength
- Natural Ventilation
- 7 Popular Types

Year after year, Skullgards lead in popularity for every head protection need, because these are the work hats that have every advantage today's workers need . . . strength, assured by *high pressure* molding of finest materials . . . unquestioned durability . . . lightweight balance on the head . . . and easy fitting comfort that makes friends with the wearer from the start! Check the features—write for the detailed Skullgard story in Bulletin DK-11.

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An Announcement of Something to Watch for

In the March issue of OCCUPATIONAL HAZARDS magazine our readers will be introduced to one of the most vital articles ever published concerning the field of industrial safety.

This series of articles is going to be about the COST of accidents. By cost, we mean the COST TO THE EMPLOYER of those accidents which happen to the workers in his plant. We all know that accidents cost money, but how many of us know how much a crushed toe, an injured eye, or a case of dermatitis really costs the man or men operating an industrial plant?

This series of articles is based on the study of a safety director of a large American plant who investigated nearly four thousand actual cases of injuries for the purpose of discovering their exact cost to his employer. His results are amazing, and his company has already credited him with having saved them $667,828.33 because of the report.

In publishing the results of this study, OCCUPATIONAL HAZARDS magazine makes no attempt to editorialize on the value of preventing the costly accidents which are included in the report. The figures speak for themselves. It doesn't pay to permit hazardous conditions to exist . . .

"THERE'S PROFIT IN PREVENTION!"